



VUMATRIX-FX

HD 4K HDR HDMI Over IP Matrix



VUMATRIX FX HDMI OVER IP MATRIX EXTENDER
VIDEOWALL CONTROL APP GUIDE

PRODUCT SPECIFICATIONS

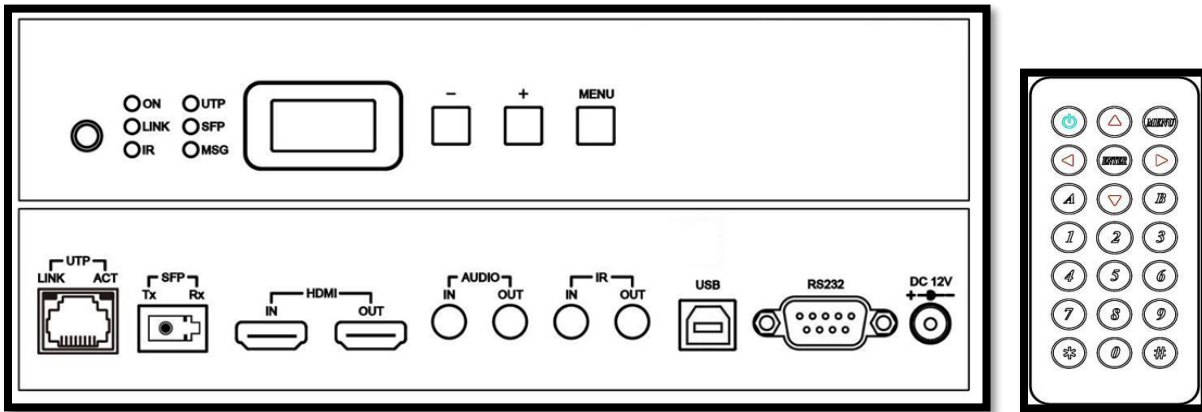
Transmitter:

Power Supply	12V – 1.5A DC, 600 mA typical consumption
Power over Ethernet	POE 802.3af
Dimensions	210 x 123 x 40 mm
Weight	680 g
HDMI Video Support	Up to 4K UHD 4:4:4 @30Hz
HDCP Compliance	HDCP 2.2
HDMI Audio Support	Up to 7.1 LPCM 192Khz / Dolby True HD / DTS-HD Master Audio / ATMOS / DTS:X
Ethernet	Gigabit RJ45
Fiber	SFP
Analog Audio Input	3.5mm Stereo Phone Jack
IR Receiver	3.5mm Stereo Phone Jack 20-60Khz / $\pm 45^\circ$ / 5M
RS232	DB9 Female

Receiver:

Power Supply	12V – 1.5A DC, 500 mA typical consumption
Power over Ethernet	POE 802.3af
Dimensions	167 x 103 x 40 mm
Weight	500 g
HDMI Video Support	Up to 4K UHD 4:4:4 @30Hz
HDCP Compliance	HDCP 2.2
HDMI Audio Support	Up to 7.1 LPCM 192Khz / Dolby True HD / DTS-HD Master Audio / ATMOS / DTS:X
Ethernet	Gigabit RJ45
Fiber	SFP
Analog Audio Output	3.5mm Stereo Phone Jack
IR Emitter	3.5mm Stereo Phone Jack 20-60Khz / $\pm 45^\circ$ / 5M
RS232	DB9 Male

CONFIGURE TRANSMITTER OUT OF BOX



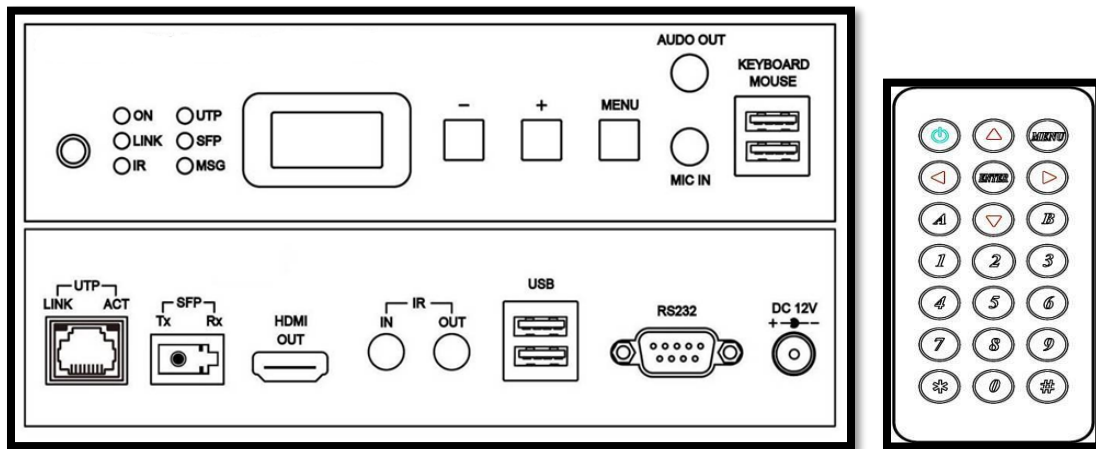
USING REMOTE CONTROL:

- 1) Power on the unit by connecting the power supply cable. Allow the unit 2 minutes to boot, until the ON LED light is lit solid green, and the On Screen Display shows a number (Transmitter ID, 0 by default).
- 2) On the Remote, press the POWER and 7 keys together to put the remote in Transmitter Mode.
- 3) On the Remote, set your Transmitter ID by pressing the UP or DOWN arrow keys, or enter the ID number you wish to use, then ENTER to confirm. Each Transmitter needs to have its own unique ID.

USING ONBOARD KEYS:

- 1) Power on the unit by connecting the power supply cable. Allow the unit 2 minutes to boot, until the ON LED light is lit solid green, and the On Screen Display shows a number (Transmitter ID, 0 by default).
- 2) Set your Transmitter ID by pressing the "+" key to increase, "-" to decrease, and "+" and "-" together to lock in. Each Transmitter needs to have its own unique ID.

CONFIGURE RECEIVER OUT OF BOX



USING REMOTE CONTROL:

- 1) Power on the unit by connecting the power supply cable. Allow the unit 2 minutes to boot, until the ON LED light is lit solid green, and the On Screen Display shows a number (Transmitter ID, 0 by default).
- 2) On the Remote, press the POWER and 8 keys together to put the remote in Receiver Mode.
- 3) On the Remote, set ID of the Transmitter you want the Receiver to show, by pressing the UP or DOWN arrow keys, or enter the ID number you wish to use, then ENTER to confirm.

USING ONBOARD KEYS:

- 1) Power on the unit by connecting the power supply cable. Allow the unit 2 minutes to boot, until the ON LED light is lit solid green, and the On Screen Display shows a number (Transmitter ID, 0 by default).
- 2) Set the ID of the Transmitter you want the Receiver to show, by pressing the "+" or "-" keys to select the number, then press the "+" and "-" keys together to confirm.

NETWORK SETUP AND REQUIREMENTS



To use the VuMATRIX FX Video Wall Control App, all transmitters and receivers must be connected to the same network (VLAN) with a Gigabit Switch (or switches), and a Gigabit Wi-Fi Router.

Gigabit Switch Requirements:

- 1) Support IP Multicasting layer 2.
- 2) Support and have enabled IGMP functions (IGMP Snooping, IGMP Querying).
- 3) Enable Jumbo Frames set to 8000 or greater.

For specific direction on how to enable these features, please refer to the manual or support specific for your switch. For detailed switch requirements and bandwidth charts, see APPENDIX B.

Wi-Fi Router / Access Point **MUST** be set to the same IP address range as the transmitters and receivers.

- ◆ By default, this range is 172.20.x.x on the transmitters and receivers.
- ◆ If the network is dedicated to this system, it is recommended to change the IP address of the router to match the default range. I.E., set to 172.20.0.1. (Please see the manual of the router for direction on how to set this.)
- ◆ If the network is shared, it is recommended to set a STATIC IP address on each of the transmitters and receivers on the same IP address range as the router. For instance, if your router is 192.168.0.1, set the transmitters/receivers to IP addresses in the 192.168.x.x range. (For more info, see APPENDIX A.)

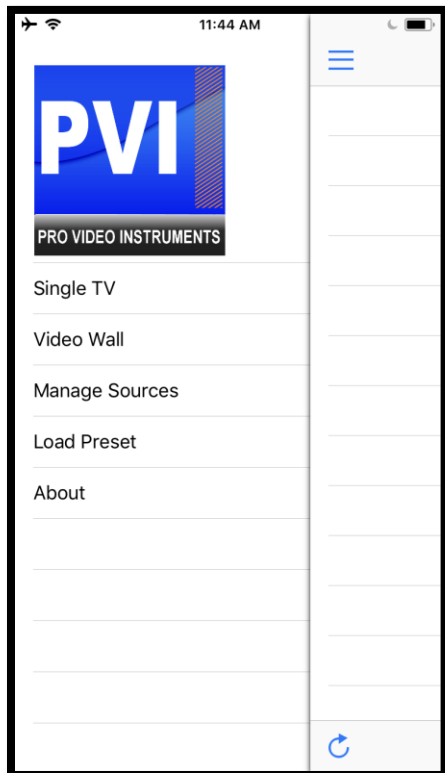
APP SETUP OVERVIEW

IMPORTANT: For best results, set up the network, connect your Transmitters/Receivers, and test that they are operating properly to transmit and receive your video **BEFORE** attempting to use the app.



Install the **VUMATRIX FX CONTROL** app on your Mobile Device from the App Store or iTunes (iOS) or Google Play Store (Android, not yet released).

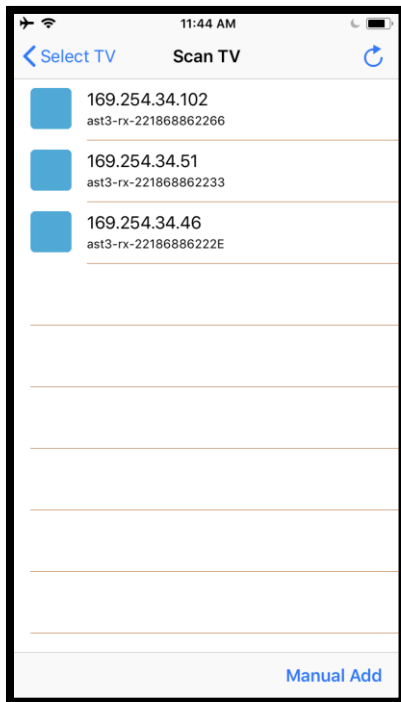
The App starts with a blank configuration. From this, you'll add Transmitters and Receivers, make Video Wall arrangements, and create configurations you can save as Presets.






Press the  Menu icon from any screen to access the functions:

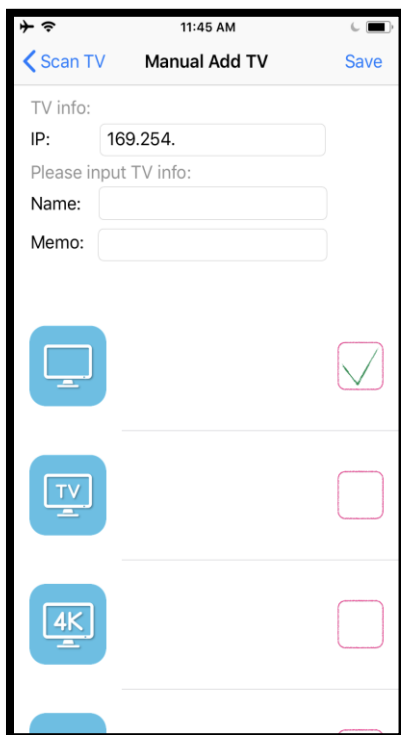
- 1) **Single TV:** Add new Receivers, and control or remove existing Receivers.
- 2) **Save Preset:** Under Single TV – Add current configuration of all Receivers as a “Preset” to recall later.
- 3) **Video Wall:** Add new video wall arrangements and use or remove existing arrangements.
- 4) **Manage Sources:** Add new Transmitters or remove existing Transmitters.
- 5) **Load Preset:** Recall a “Preset”, or previous configuration to change all Receivers at once.
- 6) **About:** Shows App version number.


ADDING RECEIVERS (TVS)



To add Receivers to the Control App:

- 1) Press  Menu, then press Single TV.
- 2) At top right, press the  button to go to Scan TV (add new receiver).
- 3) Press the  Refresh button. The app will scan for all Receivers on the network.
- 4) Press the ID for the Receiver you wish to add. (Receivers not already on the system will have a blank icon.)
- 5) Enter the name, and any memo note for reference (optional).
- 6) Select an icon to show for this Receiver.
- 7) Press Save.



If the Receiver does not appear when you press the  Refresh button:

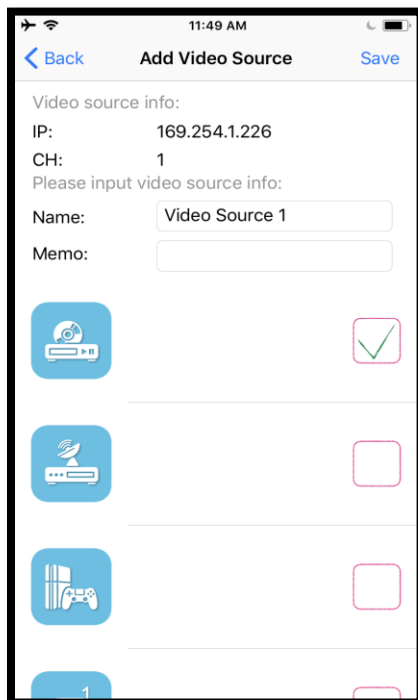
- 1) From the Scan TV screen, press Manual Add at the bottom right.
- 2) Enter the IP address of the Receiver you wish to add. (The default IP is located on the label on the bottom of the Receiver.)
- 3) Enter the name and memo note (optional).
- 4) Select an icon to show for this Receiver.
- 5) Press Save.

ADDING TRANSMITTERS (VIDEO SOURCES)



To add Transmitters to the Control App:

- 1) Press Menu, then press Manage Sources.
- 2) At top right, press the symbol to go to Scan Video Source (add new Transmitter).
- 3) Press the arrow. The app will scan for all Transmitters on the network.
- 4) Press the ID for the Transmitter you wish to add.
(Transmitters not already on the system will not have an icon.)
- 5) Enter the name, and any memo note for reference (optional).
- 6) Select an icon to show for this Transmitter.
- 7) Press Save.



If the Transmitter does not appear when you press the Refresh button:

- 1) From the Scan Video Source screen, press Manual Add at the bottom right.
- 2) Enter the IP address of the Receiver you wish to add. (The default IP is located on the label on the bottom of the Transmitter.)
- 3) Enter the name and memo note (optional).
- 4) Select an icon to show for this Receiver.
- 5) Press Save.

CREATING A VIDEO WALL

Once you have added all your Transmitters and Receivers, you can now create Video Wall arrangements using any combination of those transmitters and receivers, via the App's Video Wall function.

This document features step-by-step instructions to create many common Video Wall arrangements.

2X2, 3X3, 4X4, 5X5 VIDEO WALL

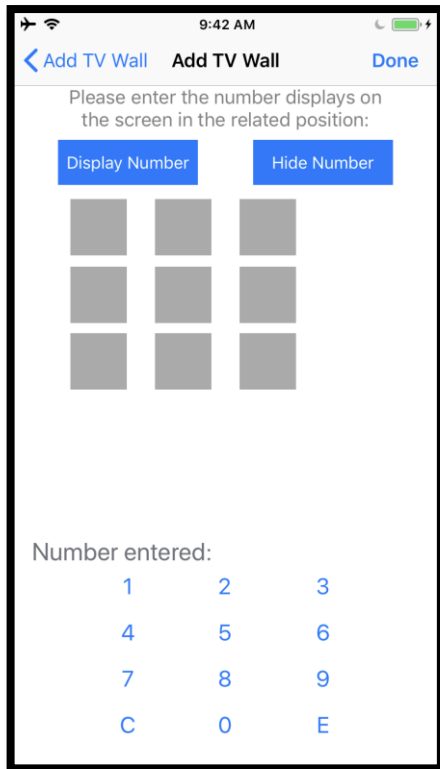
1) Press Menu, then press Video Wall.

2) At top right, press the symbol to go to Add TV Wall.

3) Enter the name you wish to use and any memo notes (optional).

4) Leave the number of Rows and Columns as 0.

5) Check the box next to the Video Wall type you wish to use, then press Next.



6) Press Display Number. A number will appear on each TV to help identify the receivers.

7) For each TV, press the box that matches that TV's position. Enter the ID number that shows on that TV, then press E. If you make a mistake, press C to clear.

8) Once all TVs are entered, press Hide Number to remove the ID numbers from the TV displays.

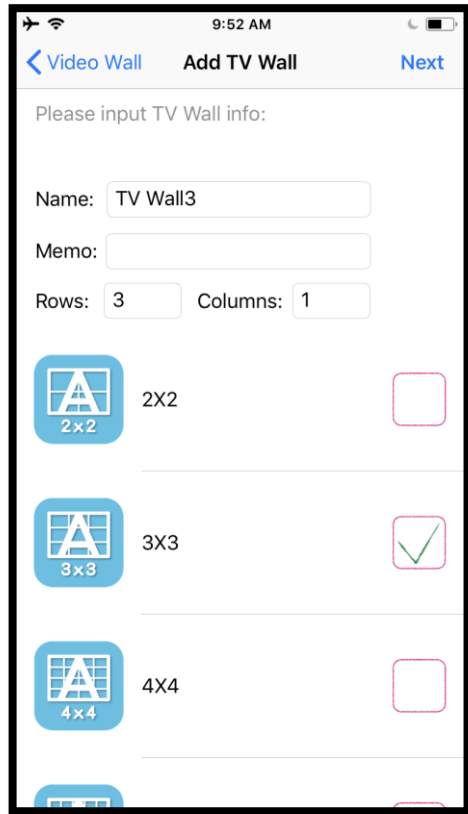
9) Once the numbers are cleared from the TVs, press Done to finish.

Example 3x3:



X BY Y STRETCH TO FIT

Create any horizontal or vertical arrangement, the system will stretch the image to fit the aspect ratio of the arrangement.



1) Press  Menu, then press Video Wall.

2) At top right, press the  symbol to go to Add TV Wall.

3) Enter the name you wish to use and any memo notes (optional).

4) Check the box next to the Video Wall that matches the largest dimension of your desired arrangement. (For instance, for a 3 x 1 vertical wall, select 3 x 3.)

5) Set the number of Rows and Columns to match your desired arrangement. (For instance, for a 3 x 1 vertical wall, enter Rows as 3 and Columns as 1.)

6) Press Next.



7) Press Display Number. A number will appear on each TV to help identify the receivers.

8) For each TV, press the box that matches that TV's position. Enter the ID number that shows on that TV, then press E. If you make a mistake, press C to clear.

9) Once all TVs are entered, press Hide Number to remove the ID numbers from the TV displays.

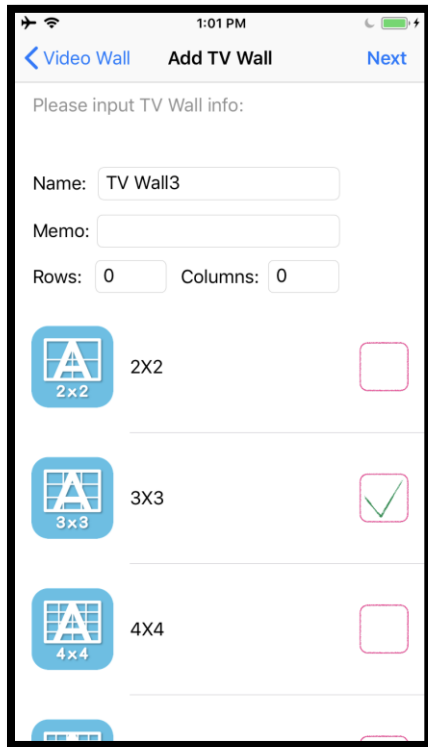
10) Once the numbers are cleared from the TVs, press Done to finish.

Example 3 x 1 Stretch to Fit:




PARTIAL IMAGE WALL

Create a slice or segment of the display that maintains the original aspect ratio.



1) Press  Menu, then press Video Wall.

2) At top right, press the  symbol to go to Add TV Wall.

3) Enter the name you wish to use and any memo notes (optional).

4) Check the box next to the Video Wall that matches the largest dimension of your desired arrangement. (For instance, for a 3 x 1 vertical segment, select 3 x 3.)

5) Leave the number of Rows and Columns as 0.

6) Press Next.



7) Press Display Number. A number will appear on each TV to help identify the receivers.

8) For each TV that you want to be a part of this arrangement, press the box that matches that TV's position in the image (not actual physical position). For instance, if you are trying to show the center vertical third of a video on your wall, enter the IDs for the TVs into the center column as shown. (See section circled in red.)

- 9) Enter the ID number that shows on that TV, then press E. If you make a mistake, press C to clear. Leave all unused sections blank.
- 10) Once all TVs are entered, press Hide Number to remove the ID numbers from the TV displays.
- 11) Once the numbers are cleared from the TVs, press Done to finish.


Example 3 x 1 Partial Wall (Center Vertical):



PICTURE IN PICTURE & COMBINATION WALLS

Create picture-in-picture effects by combining multiple video wall arrangements.

In this example, we will create a 3 x 3 video wall with a 3 x 1 picture in picture.

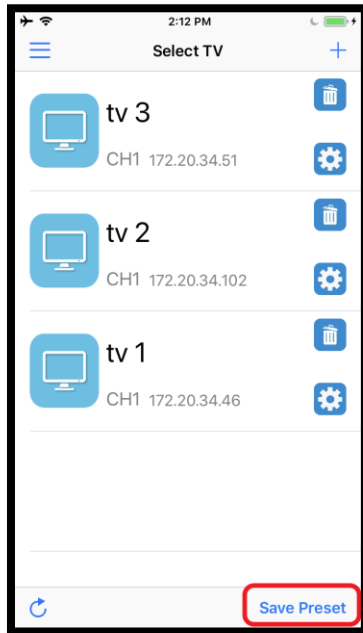
- 1) Create a 3 x 3 arrangement and a 3 x 1 arrangement using the same TVs, using the instructions from “2X2, 3X3, 4X4, 5X5 VIDEO WALL” (pg. 8) and “X BY Y STRETCH TO FIT” (pg. 10) or “PARTIAL IMAGE WALL” (pg. 12).
- 2) Press  Menu, then press Video Wall.
- 3) Press the 3 x 3 arrangement you’ve created.
- 4) Press the source video you wish to display. Your TVs will update to show a 3 x 3 wall with that source video.
- 5) Return to Video Wall, then press the 3 x 1 arrangement you’ve created.
- 6) Press the source video you wish to display. The TVs in the 3 x 1 arrangement will change to show the new source video, while the TVs outside of the 3 x 1 arrangement will keep showing their parts of the 3 x 3 arrangement.
- 7) You can use the “Presets” feature to save this combination for future use. (See “SAVING AND LOADING PRESETS”.)

Example Combination Wall:




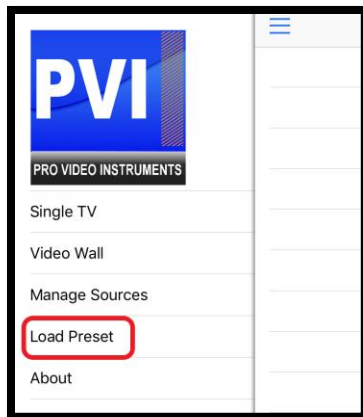
SAVING AND LOADING PRESETS

A “Preset” is a saved configuration of your entire system that you can recall at the touch of your screen. When a Preset is loaded, ALL Receivers will update to whatever source or videowall configuration you have saved to that Preset.




To save a Preset:

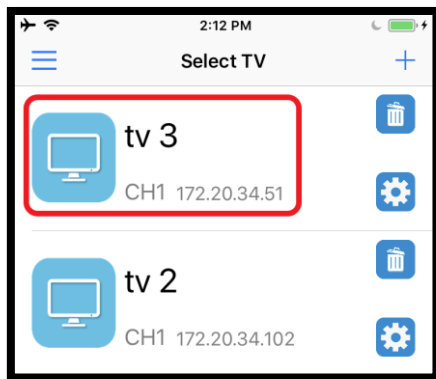
- 1) Press Menu , then press Single TV.
- 2) Press Save Preset.
- 3) Enter the name you wish to use for this Preset, then press Save.




To Load a Preset:

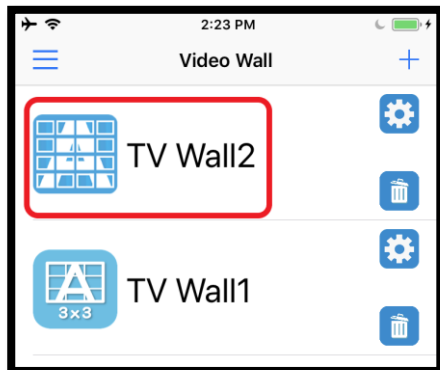
- 1) Press Menu , then press Load Preset.
- 2) Press the name of the Preset you wish to load.
- 3) Press Yes to confirm.
- 4) Allow 15 – 20 seconds all the TVs to update.

USING THE VIDEOWALL APP – THE END USER EXPERIENCE




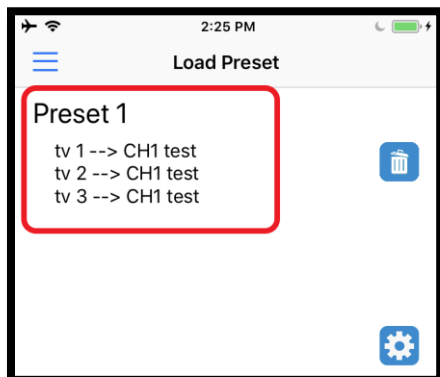
Changing the Source of a Single TV:

- 1) Press Menu , then press Single TV.
- 2) Press the ID of the TV you want to control.
- 3) Press the ID of the Video Source you want to display on the TV.
- 4) Allow 15 seconds for the TV to update.




Changing multiple TVs to a Video Wall arrangement:

- 1) Press Menu , then press Video Wall.
- 2) Press the arrangement you want to use.
- 3) Press the ID of the Video Source you want to display on the arrangement.
- 4) Allow 15 – 20 seconds for all the TVs to update.




Loading a Preset Configuration (Changes all TVs):

- 1) Press Menu , then press Load Preset.
- 2) Press the name of the Preset you want to use.
- 3) Press Yes to confirm.
- 4) Allow 15 – 20 seconds for all the TVs to update. Each TV will be set to the sources and arrangements saved to the Preset.

TROUBLESHOOTING

This document covers **ONLY** troubleshooting with app set up and usage. For full system troubleshooting, see the full manual available at www.pvisupport.com, or contact our technical support (see TECH SUPPORT – CONTACT US section).

I CAN'T ADD TRANSMITTERS AND/OR RECEIVERS

- ◆ Check your transmitters and receivers. Make sure they are connected to the network and able to transmit/receive video via manual setup with the remote or onboard keys. (See pages 2 and 3 for physical installation and reset instructions.)
- ◆ Make sure your phone is connected to the correct Wi-Fi network for your VuMATRIX system.
- ◆ If you can't see the transmitters and receivers when you use the  button to scan, try to use Manual Add.
- ◆ Check that the IP address of your Wi-Fi router is in the same range as your VuMATRIX transmitters and receivers. For instance, if your receivers are on the range "170.20.xxx.xxx", the Wi-Fi router's IP address also needs to be in the range "170.20.xxx.xxx"

TVS DON'T CHANGE SOURCE WHEN I USE THE APP

- ◆ Make sure your phone is connected to the correct Wi-Fi network for your VuMATRIX system.
- ◆ Check the receivers. Make sure they are connected to the network and able to transmit/receive video via manual setup with the remote or onboard keys. (See pages 2 and 3 for physical installation and reset instructions.)

VIDEO STOPS ON THE TVS WHEN I CHANGE THE TV OR VIDEO WALL SOURCE

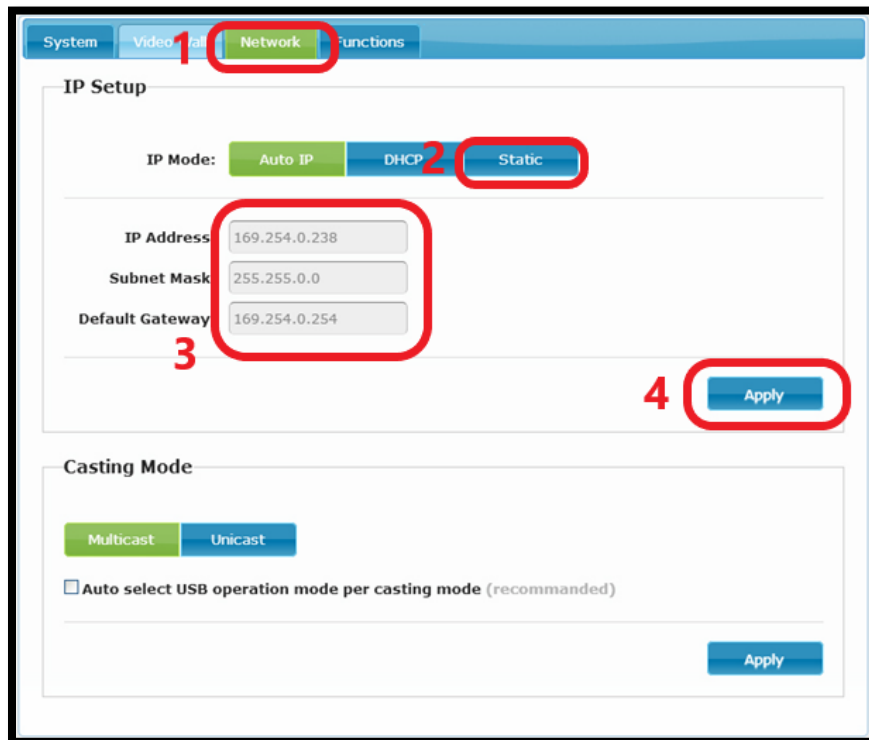
- ◆ Allow 15 – 20 seconds for the video to update to the new source. (It's normal for the video to appear to stop while changing sources.)
- ◆ If the video doesn't start again, check the source device connected to the transmitter and make sure it's currently playing.

APPENDIX A: CHANGING IP ADDRESS OF TRANSMITTER / RECEIVER

NOTE: If the default IP address is changed and then the address is lost, refer to Appendix C for direction on how to reset the unit to factory defaults.

To change the IP address of an individual Transmitter or Receiver:

- Look for the default IP address of the unit printed on the label at the bottom of the unit. This IP address is determined by the hardware and is unique for each device.
- Connect the device to your computer via Ethernet. (If your computer is set to obtain an IP address automatically, there's no need to set a manual IP address.)
- Open a web browser window (i.e. Internet Explorer or Chrome). In the browser's address bar, enter the unit's default IP address to navigate to the unit's web interface.



- 1) Click on the Network tab.
- 2) Under IP mode, click "Static".
- 3) Enter the IP Address, Subnet Mask, and Default Gateway as needed.
- 4) Click "Apply" to save changes.
- 5) You will be prompted to Restart the device. Go to System > Functions > Reboot to restart in the menu, or simply power off then power on the device.

APPENDIX B: GIGABIT SWITCH RECOMMENDED SETTINGS

The VuMATRIX FX system requires that all transmitters and receivers must be connected to the same network (VLAN) with a Gigabit Switch (or switches), and a Gigabit Wi-Fi Router. The Gigabit Switch **MUST** support Multicast Layer 2, IGMP, and Jumbo Frames.

The following is a list of Gigabit Switch Settings that are **STRONGLY RECOMMENDED** to use with this system for best quality:

- ◆ IGMP Snooping: Must be enabled. If all ports default to VLAN1, ensure IGMP Snooping on VLAN1 is enabled.
- ◆ IGMP Snooping Fast-leave: Enable if found.
- ◆ IGMP Version: Set to IGMP Version 2 if able.
- ◆ IGMP Query: Must be enabled. If all ports default to VLAN1, ensure IGMP Query on VLAN1 is enabled.
- ◆ Jumbo Frames: Enable and set to above 8000.
- ◆ Filter / Drop Unregistered Multicast Traffic: Must be enabled if found.
- ◆ Unregistered Multicast Flooding: Must be disabled if found.

Multicast bandwidth usage (per transmitter):

Resolution (@60Hz)	Average Bandwidth (Mbps)	Resolution (@60Hz)	Average Bandwidth (Mbps)
3840x2160 (2160p)	218 (146~268)	1280x1024 (SXGA)	113 (79~150)
1920x1080 (1080p)	133 (80~210)	1024x768 (XGA)	81 (72~120)
1280x720 (720p)	147 (112~177)	800x600 (SVGA)	66 (49~82)
1600x1200 (UXGA)	81 (57~105)	640x480 (VGA)	43 (29~56)

APPENDIX C: FACTORY RESET

NOTE: Only perform these steps if needed to recover if the IP address is lost, or as directed by PVI Technical Support.

Using the Remote:

- 1) If resetting the Transmitter, press Power + 7 on the remote to put it in Transmitter Mode. If resetting the Receiver, press Power + 8 to put the remote in Receiver Mode.
- 2) On the Remote, press Menu, 3, 3, 3, Enter to reset the unit. This places all values at factory defaults. After about 10 seconds, the unit will reboot.
- 3) Allow the unit 2 minutes to reboot until it shows the ON LED light solid green and the On Screen Display shows the number 0.
- 4) Refer to the label on the bottom of the unit for the default IP address.

Using the Onboard Keys:

- 1) On the unit, press the keys "Menu", "+", "-". You will see the numbers "333" on the On Screen Display.
- 2) Press "+" and "-" keys together. This places all values at factory defaults. After about 10 seconds, the unit will reboot.
- 3) Allow the unit 2 minutes to reboot until it shows the ON LED light solid green and the On Screen Display shows the number 0.
- 4) Refer to the label on the bottom of the unit for the default IP address.

IMPORTANT: In some cases, the address may differ and be in the "169.254.xxx.xxx" range instead of the "172.20.xxx.xxx" range, but the last 2 segments will be the same. If the printed address does not work, replace the "172.20..." with "169.254...". For example, if the printed address is "172.20.12.345", try "169.254.12.345" to access. If the unit has a "169.254.xxx.xxx" address, use APPENDIX A to set the unit's IP address to the same range as the other units before using.

TECH SUPPORT – CONTACT US

For any needs not covered in this Video Wall Control App Guide, visit www.pvisupport.com, and look for VuMATRIX FX under “Knowledgebase”.

Should you need any additional support, to submit a support ticket, please go to www.pvisupport.com and click “Submit a Ticket”. Our support staff will address your questions very quickly right after you post the ticket.

We strongly suggest that you open a ticket first before calling, so we can best support you.

Our tech support department is active MON-FRI 9:30 AM – 5 PM US EST TIME. Tickets posted outside of this time window or on weekends and holidays are responded to ASAP the following business day.

Free phone tech support is available by calling +1 407 720 6101 ext #2, MON-FRI 9:30 AM – 5 PM US EST TIME.

END