

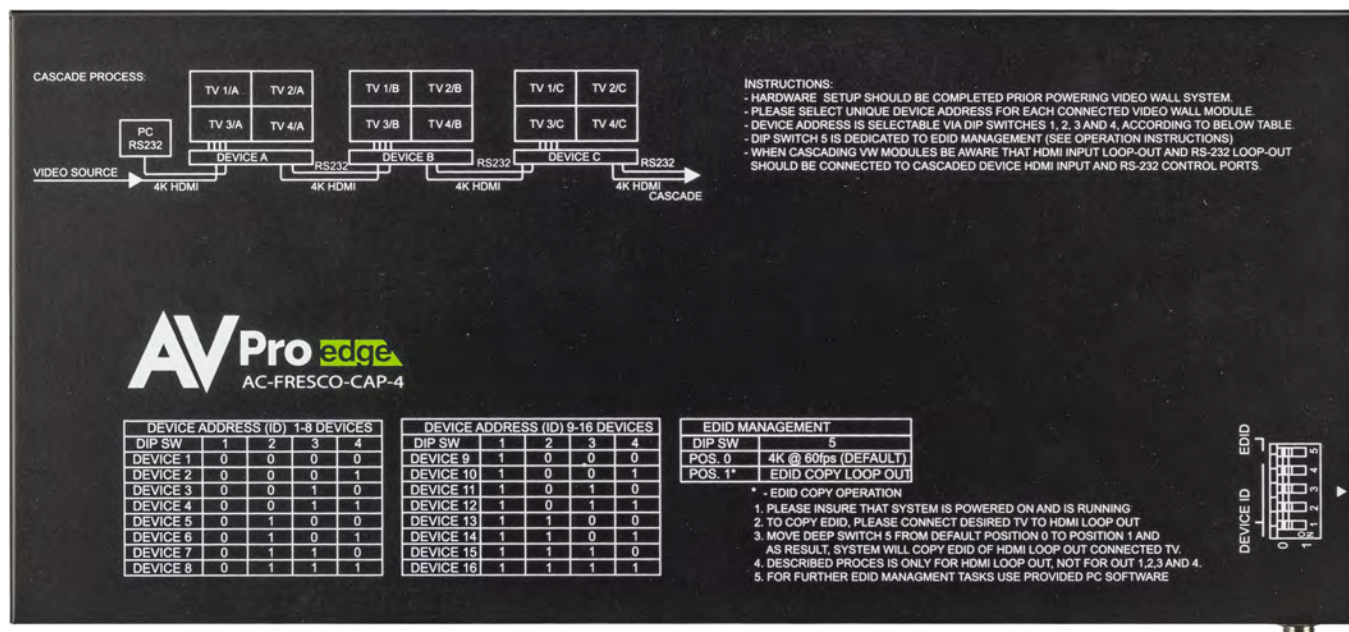
# User Manual

## AC-FRESCO-CAP-4

1 HDMI Input/4 HDMI Outputs - Dedicated Video Wall Processor

Supports up to 18Gbps 4K60 (4:4:4) Output Resolutions

Cascade Multiple Processors for Larger Video Wall Arrays



The AC-FRESCO-CAP-4 is a Dedicated Video Wall Processor supporting Output Resolutions up to 18Gbps 4K60 (4:4:4) through its 1 HDMI Input and 4 HDMI outputs. The FRESKO is a "Plug-and-Play" 4-panel Video Wall which is expandable by cascading multiple FRESKO processors to build larger Video Wall arrays.

Simple yet powerful, the FRESKO Video Wall Software makes setting up your video wall a breeze. Use either the PC software, or built in browser based web GUI. Enter the bezel and visible picture dimensions for each display, and the FRESKO will automatically adjust the picture mapping coordinates while compensating for bezel and visible picture gaps. This process ensures an ideal Video Wall that is easy to do.

Video walls give sports bars, retail stores, entertainment venues, and hotels an opportunity to "WOW" their customers with big, bold and bright messaging.

## ■ Features:

- HDMI 2.0(a/b)
- 18Gbps Bandwidth Support
- 720P to 4K60 4:4:4 Output Resolution
- HDCP 2.2 (and all earlier versions supported)
- EDID Management
- IR, RS-232 and LAN Control Options
- Balanced Analog Out (2CH PCM)
- Down-scaling mode for mixed systems

## ■ Easy to use:

- Install in seconds
- Feature rich
- EDID management
- IR Remote
- IR & RS-232 Control
- LAN Control

## ■ In The Box:

- AC-FRESCO-CAP-4 Video Wall Processor
- IR Remote Control
- 5V Locking Power Supply
- Two 3-Pin Terminal Blocks
- One 5-pin Terminal Block
- Mounting Brackets
- Rubber Feet

## ■ Quick Installation:

1. Connect the HDMI input source (Blu-ray, Set Top Box, etc...) to the AC-FRESCO-CAP-4.
2. Connect the four HDMI Outputs from the AC-FRESCO-CAP4 to your four Video Wall displays.
3. Power on the source.
4. Connect the power supply into the AC-FRESCO-CAP4.
5. Turn on output devices/displays.
6. Use the free LAN/RS-232 PC software to setup the video wall configuration and image mapping.

## Specifications:

<b>VIDEO:</b>	
VIDEO RESOLUTIONS	UP TO 4K 60HZ 4:4:4
VESA RESOLUTIONS	UP TO DCI 4K (4096X2160) 5K (UP TO 5120X3200)
COLOR SPACE	YUV (COMPONENT), RGB (CSC: REC. 601, REC. 709, BT2020, DCI, P3 D6500)
CHROMA SUBSAMPLING	4:4:4, 4:2:2, 4:2:0 SUPPORTED
DEEP COLOR	UP TO 16 BIT (1080), UP TO 12 BIT (4K)
<b>AUDIO:</b>	
AUDIO FORMATS SUPPORTED HDMI	PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGITAL, DTS 5.1, DOLBY DIGITAL PLUS, DOLBY TRUEHD, DTS-HD MASTER AUDIO, DTS-X, DOLBY ATMOS
AUDIO FORMATS SUPPORTED EXTRACTED (2CH PORT)	PCM 2 CH
<b>DISTANCE:</b>	
HDMI IN/OUT (4K60 4:4:4)	UP TO 50 FEET (USING BULLET TRAIN HDMI)
HDMI IN/OUT (W/ AOC CABLE) (4K60 4:4:4)	UP TO 130 FEET (USING BULLET TRAIN AOC)
<b>OTHER:</b>	
BANDWIDTH	18 GBPS
HDCP	HDCP 2.2 AND EARLIER
<b>CONTROL:</b>	
PORTS	LAN, RS232, IR WINDOW
LAN WEBOS	YES
<b>PORTS:</b>	
HDMI	TYPE A
LAN	RJ45 W/ WEB INTERFACE/ CONTROL
AUDIO (EXTRACTED ANALOG)	5 PIN TERMINAL BLOCK (BALANCED)
IR RX	WINDOW ONLY (REMOTE INCLUDED)
RS232	3 PIN TERMINAL BLOCK
<b>ENVIRONMENTAL:</b>	
OPERATING TEMPRATURE	23 TO 125°F (-5 TO 51°C)
STORAGE TEMPERATURE	-4 TO 140°F (-20 TO 60°C)
HUMIDITY RANGE	5-90% RH (NO CONDENSATION)
<b>POWER:</b>	
POWER CONSUMPTION (TOTAL)	6 WATTS MAX
POWER SUPPLY - MATRIX	INPUT: AC 100-240V ~ 50/60HZ OUTPUT: DC 12V 2A
<b>DIMENSIONS:</b>	
DIMENSIONS (UNIT ONLY - HEIGHT/DEPTH/WIDTH)	MM: 30.5 X 138.3 X 296.9 INCH: 1.2 X 5.45 X 11.69
DIMENSIONS (PACKAGED HEIGHT/DEPTH/WIDTH)	MM: 76.2 X 184.2 X 317.5 INCH: 3 X 7.25 X 12.5
WEIGHT (UNIT)	2.5 LBS (1.13 KG)
WEIGHT (PACKAGED)	3.5 LBS (1.59 KG)
<b>*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS &amp; DIMENSIONS ARE APPROXIMATE</b>	

**Introduction, Features, In the Box..... 2**

**Specifications..... 3**

**Device Overview..... 5**

**Connection Diagram..... 6**

**Video Wall Measurement Guide..... 7**

**PC Software Connect:Network/LAN..... 8**

**PC Software Connect: USB/RS-232..... 9**

**PC Software Measure..... 10**

**PC Software Output Resolution..... 11**

**PC Software Advanced..... 12**

**RS-232..... 13-14**

**Troubleshooting..... 15**

**Maintenance, Damage Requiring Service.... 16**

**Support, Warranty..... 17**



## ■ Device Overview:

- Definition - A Video Wall is a special array consisting of multiple computer monitors, video projectors, or television sets tiled together contiguously, or overlapped in order to form one large image/picture.
- Video Walls are widely used in commercial and various entertainment venues.

## ■ FrontPanel:

- "POWER" - Power indicator light. When the FRESCO is plugged into AC power, the light will illuminate in RED.
- "ISP / CONTROL" - Micro USB service and control port. Primarily used for Software and Firmware updates.



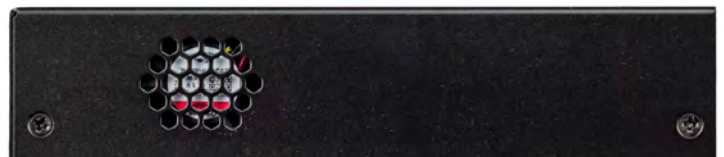
## ■ RearPanel Overview:

- "ETHERNET" (LAN RJ45 PORT) Default IP Address for LAN control is 192.168.001.239
- "HDMI INPUT" used for source input
- "LOOP-OUT" used in cascading additional FRESCO Video Wall processors for building larger Video Wall arrays.
- "HDMI OUTPUT" - OUT1" through "OUT4"
- "BAL" (Balanced Extracted Audio) supports only 2CH PCM.
- "RS232" - "LOOP-OUT" used for cascading RS232 control signals to concurrent FRESCO processors.

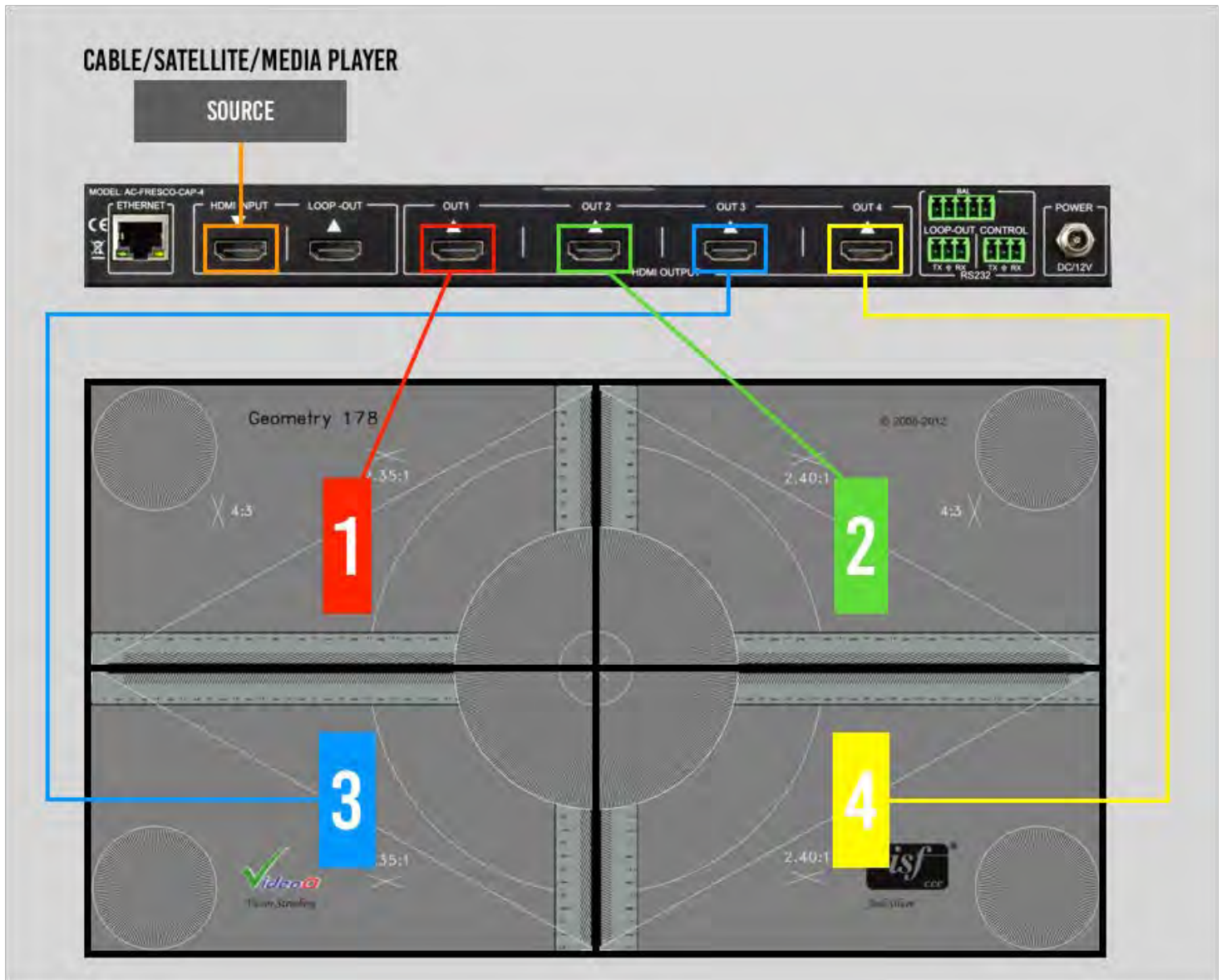


## ■ Side Panels:

- "DEVICE ID" DIP Switch - Set individual Device ID's when using multiple FRESCO processors, and set EDID options. The Device ID settings chart and EDID options info are found on the top panel of the FRESCO processor.
- FAN



## FRESCO CONNECTION DIAGRAM & OUTPUT-TO-DISPLAY ASSIGNMENTS



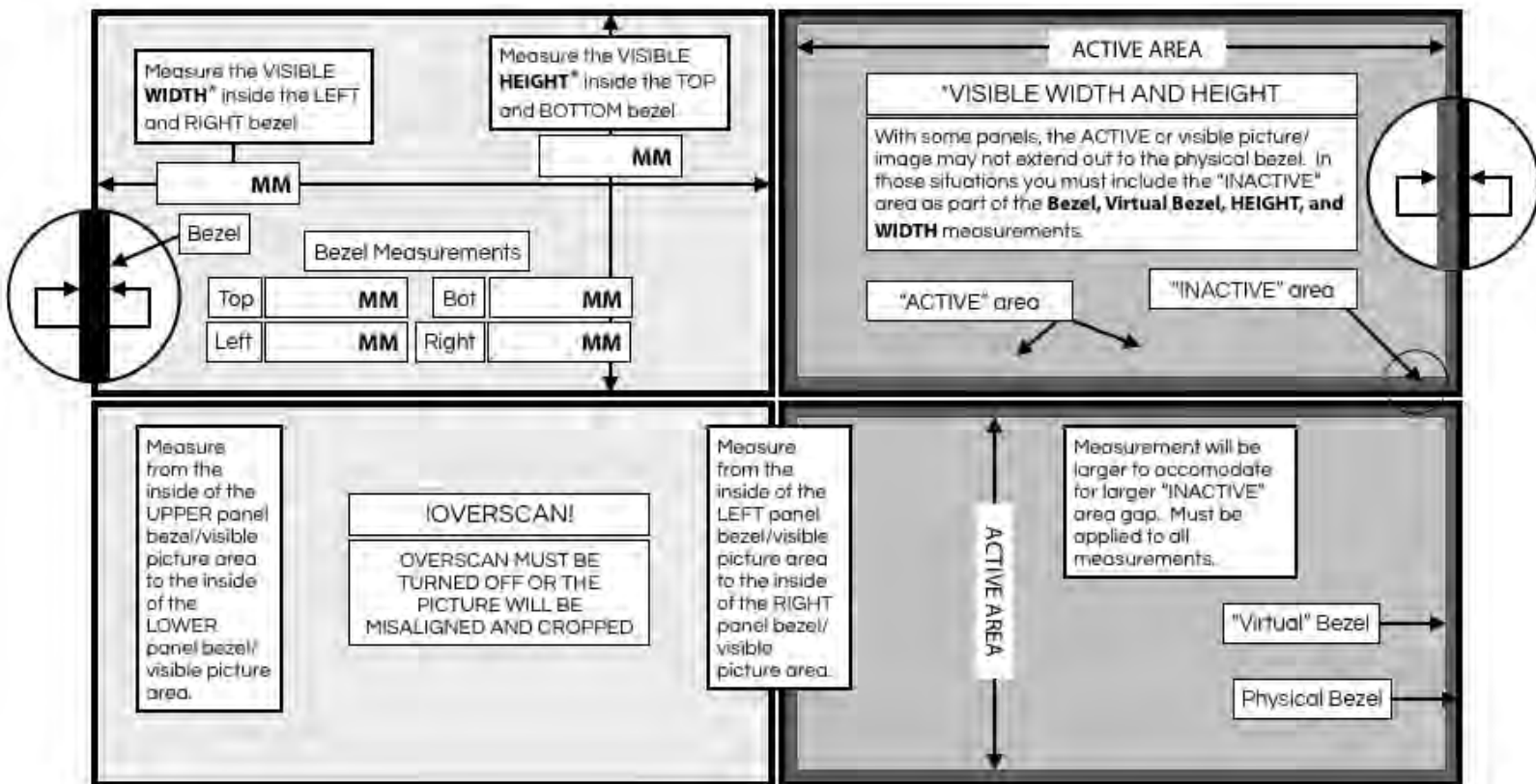
## THE FRESCO VIDEO WALL PC SOFTWARE WIZARD

### *THE BIGGEST CHALLENGE TO SETTING UP A FRESCO VIDEO WALL IS HANGING THE PANELS!*

#### Five easy steps to video wall perfection

1. Do a great job hanging the panels
2. Launch the Fresco PC Software and connect to the Fresco Processor
3. Measure the top left Display/Panel and enter the info
4. Set the OUTPUT Resolution
5. Click the 'GENERATE VIDEO WALL' button
6. NO STEP 6 - YOU ARE DONE!

## FRESCO VIDEO WALL MEASUREMENT GUIDE





## FRESCO PC SOFTWARE

The following four pages provide step-by-step instructions for using the FRESCO PC SOFTWARE to setup and configure your FRESCO VIDEO WALL.

### ■ *CONNECT:NETWORK/LAN*

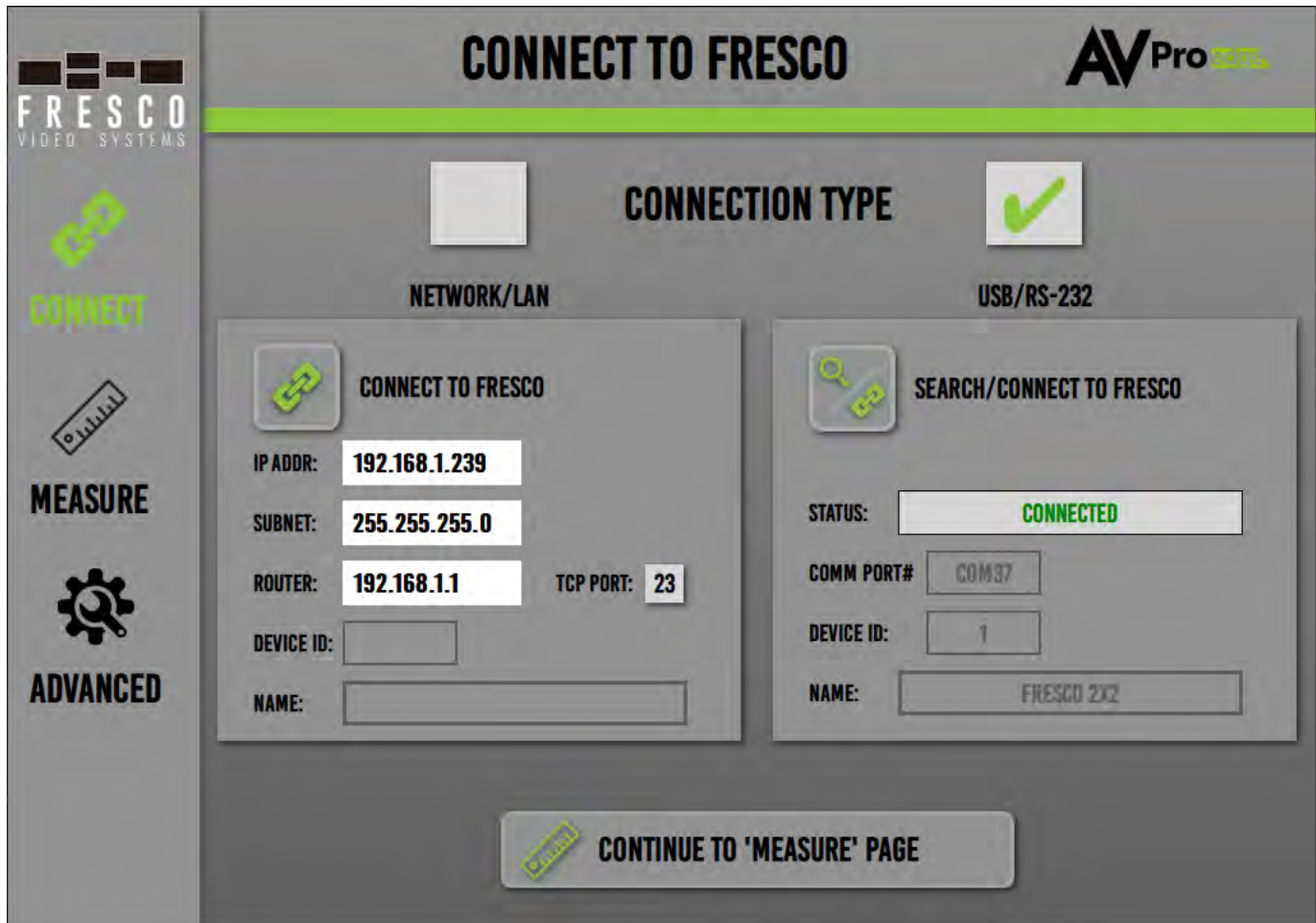


### ■ CONNECTIONTYPE:

- Click on box above NETWORK/LAN
- Default IP = 192.168.001.239
  - ( Changing the IP address requires using the web interface or sending direct control commands via an RS-232 Connection and Terminal app. Baud rate = 57,600 )
- Click the "CONNECT TO FRESCO" button underneath NETWORK/LAN settings



## ▪ *CONNECT: USB/RS-232*



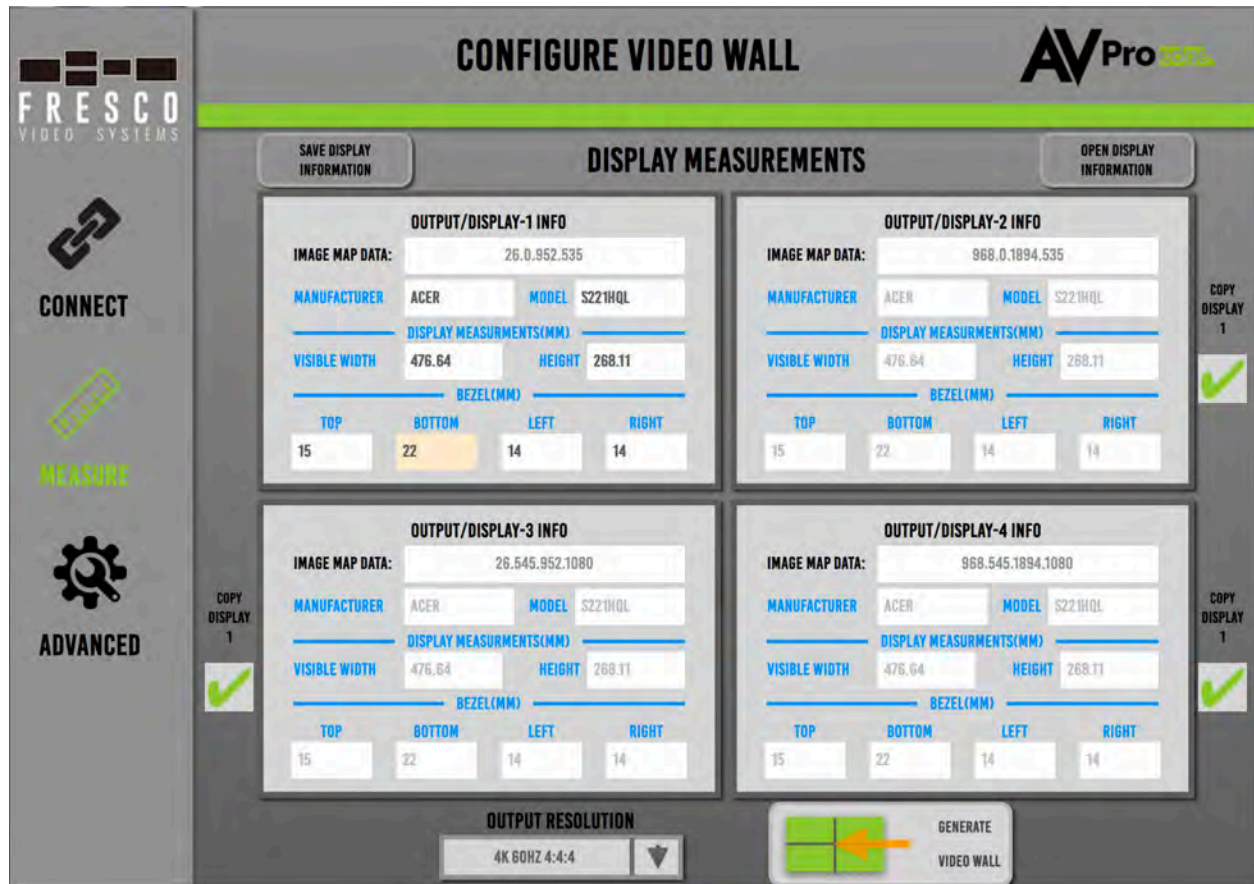
The screenshot shows the 'CONNECT TO FRESCO' web interface. On the left sidebar, there are three main sections: 'CONNECT' (with a green link icon), 'MEASURE' (with a ruler icon), and 'ADVANCED' (with a gear icon). The main content area is titled 'CONNECT TO FRESCO' and features a 'CONNECTION TYPE' section with two options: 'NETWORK/LAN' (unselected) and 'USB/RS-232' (selected, indicated by a green checkmark). Below the 'NETWORK/LAN' section, there is a 'CONNECT TO FRESCO' button and fields for IP ADDR (192.168.1.239), SUBNET (255.255.255.0), ROUTER (192.168.1.1), TCP PORT (23), DEVICE ID, and NAME. Below the 'USB/RS-232' section, there is a 'SEARCH/CONNECT TO FRESCO' button, a 'STATUS' field showing 'CONNECTED', and fields for COMM PORT# (COM37), DEVICE ID (1), and NAME (FRESCO 2X2). At the bottom, there is a 'CONTINUE TO 'MEASURE' PAGE' button.

## ▪ **CONNECTIONTYPE:**

- Click on the box above USB/RS-232.
- For USB/RS-232, you can opt the connect via the ISP/CONTROL Mini USB port on the front of the FRESCO, or alternately use the 3-pin Phoenix CONTROL connection on the back.
- For USB/RS-232, click the "SEARCH FOR VIDEO WALL PROCESSOR" button (Magnifying Glass). The FRESCO COMM PORT#, DEVICE ID, and NAME will automatically fill the data fields
- If the FRESCO is found, click the "CONNECT TO FRESCO" button underneath the USB/RS-232 settings

## ■ MEASURE:

*THE BIGGEST CHALLENGE WITH CREATING A FRESCO VIDEO WALL IS MOUNTING THE PANELS!*

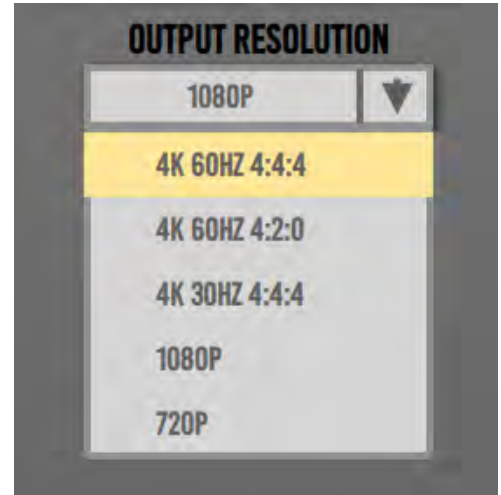


## ■ DISPLAY MEASUREMENTS:

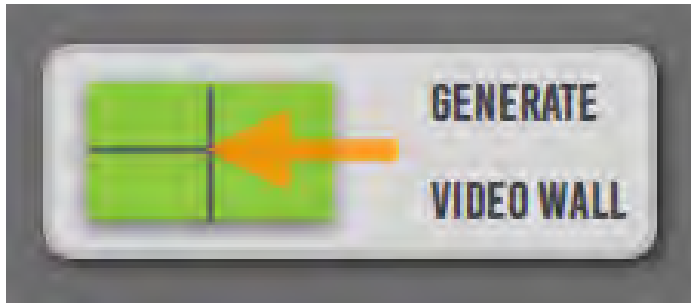
- Enter the MANUFACTURER and MODEL info.
- Use ONLY Millimeters to take measurements (due to their added precision).
- Take measurements of the VISIBLE WIDTH, HEIGHT and thicknesses of ALL FOUR BEZELS (TOP,BOTTOM, LEFT, RIGHT). See display measurement guide on PAGE 6.
- Click the "SAVE DISPLAY INFORMATION" button. (This info will be saved for future use.)
- Click the "OPEN DISPLAY INFORMATION" button to load previously saved display info. (IF NEEDED)
- NOTE: If all of your displays are the same make and model, next CHECK the 3 "COPY DISPLAY 1" boxes. The display info from the DISPLAY-1 box will be auto entered into the other three display rectangles.

## ■ **OUTPUT RESOLUTION:**

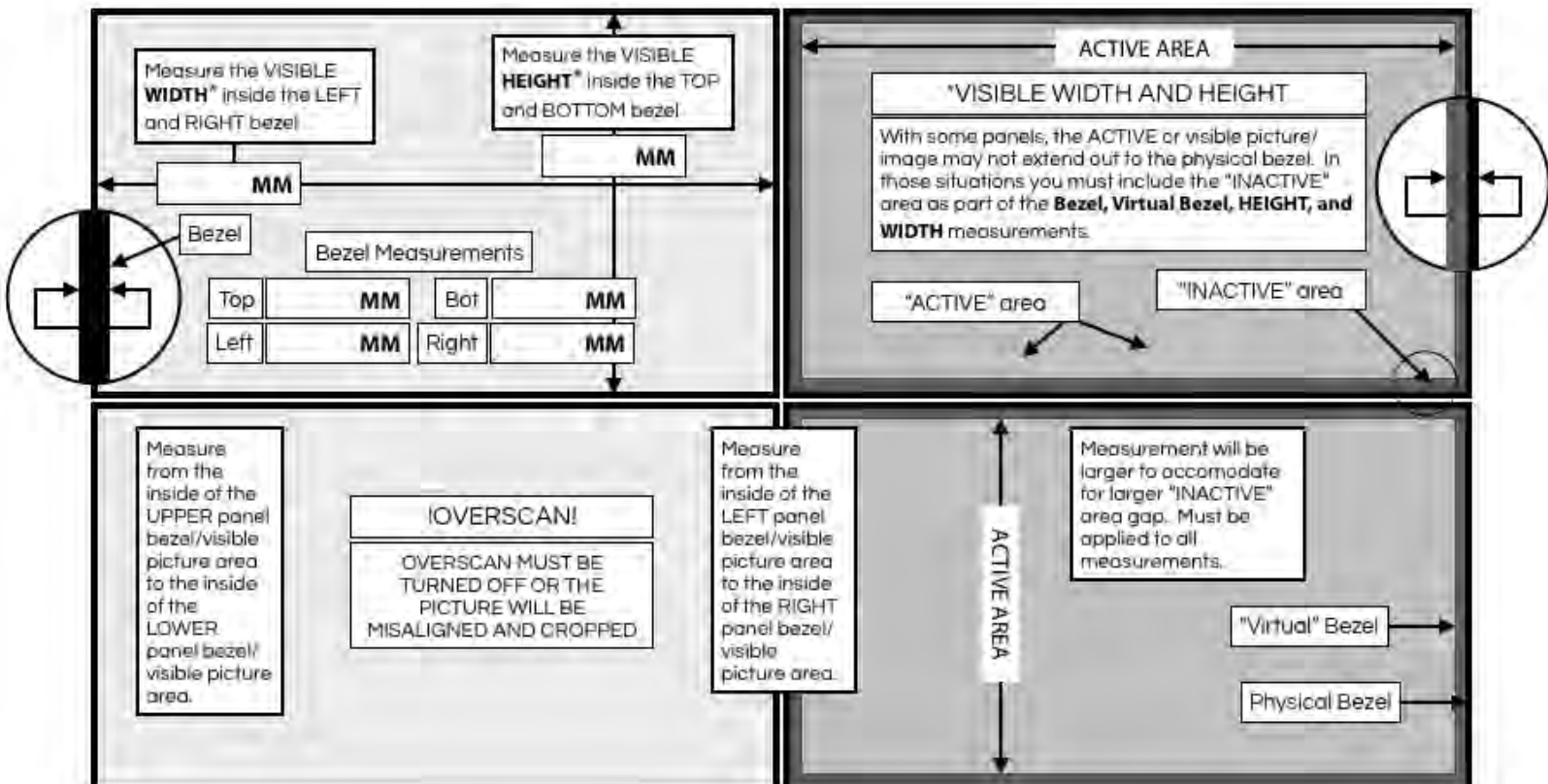
- Select the "OUTPUT RESOLUTION" from the drop-down menu.
- OUTPUT RESOLUTION options:
  - 720P, 1080P, 4K 30HZ 4:4:4, 4K 60HZ 4:2:0, and 4K 60HZ 4:4:4



## ■ **Click "GENERATE VIDEO WALL" button.**

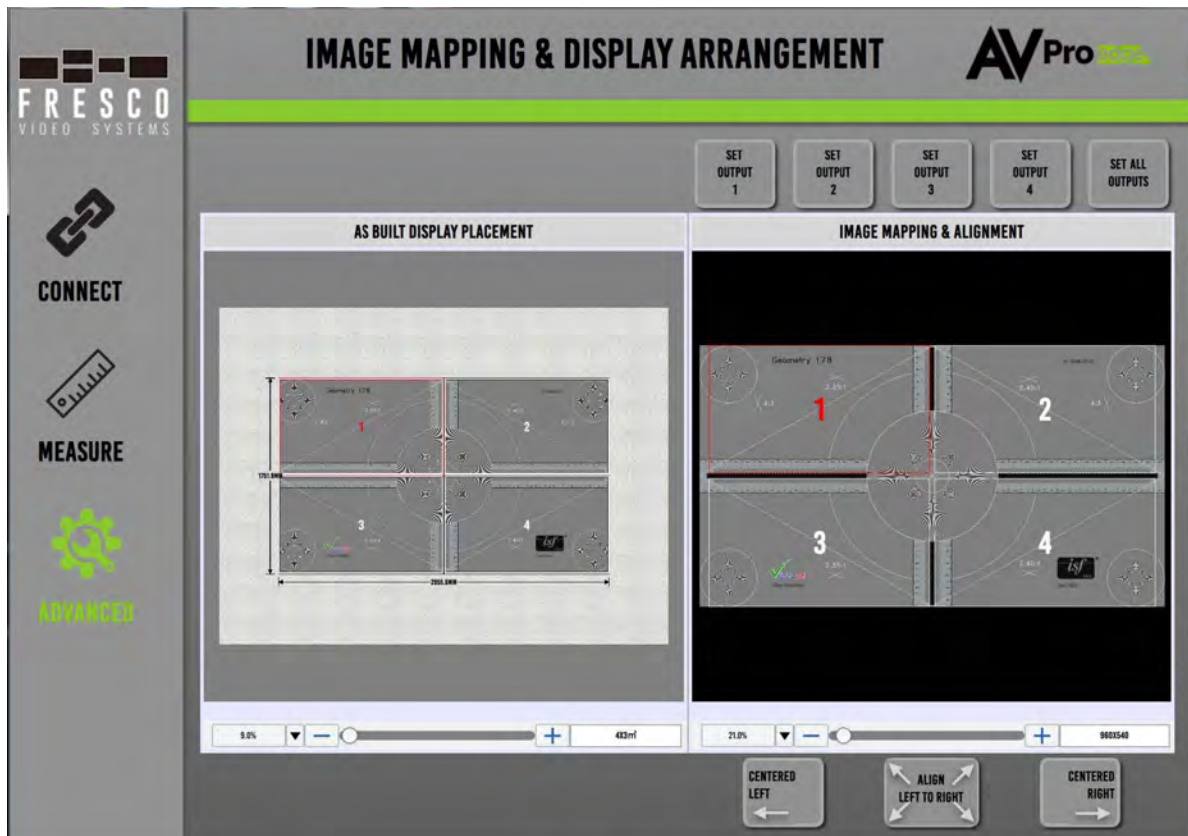


## **VIDEO WALL DISPLAY MEASUREMENT GUIDE**





## ■ **ADVANCED:**



## ■ **AS BUILT DISPLAY PLACEMENT**

- This section represents the virtual wall where the displays are mounted.
- The FRESCO software will assume that you have mounted the displays directly adjacent to each other with very little, or zero gaps separating the displays.
- If your display placement is otherwise, you can click and drag any of the four display rectangles to a different position on the virtual wall.

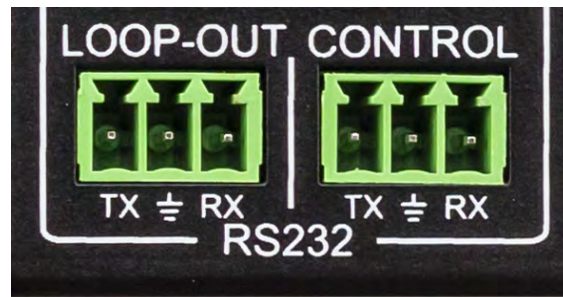
## ■ **IMAGE MAPPING & ALIGNMENT**

- This section allows for display mapping adjustments necessary when either the display placement is non-typical (contiguous and immediately adjacent) or you have different size displays.
- Click on any of the rectangles and either drag them around, or use the arrow keys to nudge them into the desired active image positions.
- Any changes will automatically live update the image mapping in the AS BUILT DISPLAY PLACEMENT section.
- Click on the SET OUTPUT (1-4) buttons to update the signal being sent to the actual displays, or click the SET ALL OUTPUTS button to update all the displays at the same time.
- The CENTERED LEFT, CENTERED RIGHT AND ALIGN LEFT TO RIGHT buttons help with repositioning the rectangles more precisely.

## ▪ *RS-232 and TCP/IP Commands:*

- The AC-FRESCO-CAP-4 can be controlled using either communication method.
- For TCP/IP control commands use Telnet Port 23.
- For RS-232, use a null modem serial cable adapter and set the serial communications to:
  - 57600,n,8,1 (baud: 57600, no parity, 8 data bits and 1 stop bit) with no handshaking.
- Please add a carriage return (Enter key) after each command when using direct commands.
- The unified command list (ASCII) is listed below.

Command	Action
H	: Help
STA	: Show Global System Status
SET RBT	: Reboot Device
SET RST	: Reset to Factory Defaults
SET FAN SPEED x	: Set Fan Speed{x=0~6}
SET INx EDID y	: Set Input x EDID{x=[0~1](0=ALL), y=[0~3]} 0:Bypass(Follow Output 1) 1:4K60HZ_2CH 2:4K30HZ_2CH 3:1080P_2CH
GET ADDR	: Get System Address
GET STA	: Get System System Status
GET FAN SPEED	: Get Fan Speed Status
GET INx EDID	: Get Input x EDID Index{x=[0~1](0=ALL)}
<b>Video Wall:</b>	
SET VWPSMx	: Set Video Wall Preset Mode {x=[0~3]}
SET VWSSMx	: Save Current Video Wall Setting to Preset Mode {x=[0~3]}
SET OUTx VWXYZ x1.y1.x2.y2.z	: Set Output Video Wall Parameter,start from(x1,y1) to (x2,y2), Rotation angle(z) {x=[0~4](0=ALL),x1=[0~1920],y1=[0~1080],x2=[x1~1920], y2=[y1~1080],z=[0,180]}
SET OUTx VFMTy	: Set Output x Video Timing Format{x=[0~4](0=ALL),y=[0~4]} (0=4K60HzRGB,1=4K60HzY420,2=4K30HzY444,3=1080p60Hz,4=720p60Hz, 5=EDID Preferred Timing)}
GET OUTx VWXYZ	: Get Output Video Wall Parameter {x=[0~4](0=ALL)}
GET OUTx VFMT	: Get Output x Video Timing Format{x=[0~4](0=ALL)}
<b>Network Setup Command: ( xxx=[000-255], zzzz=[0001~9999] )</b>	
SET RIP xxx.xxx.xxx.xxx	: Set Route IP Address to xxx.xxx.xxx.xxx
SET HIP xxx.xxx.xxx.xxx	: Set Host IP Address to xxx.xxx.xxx.xxx
SET NMK xxx.xxx.xxx.xxx	: Set Net Mask to xxx.xxx.xxx.xxx
SET TIP zzzz	: Set TCP/IP Port to zzzz
SET DHCP y	: Set DHCP {y=[0~1](0=Dis,1=Enable)}
GET RIP	: Get Route IP Address
GET HIP	: Get Host IP Address
GET NMK	: Get Net Mask
GET TIP	: Get TCP/IP Port
GET DHCP	: Get DHCP Status
GET MAC	: Get MAC Address



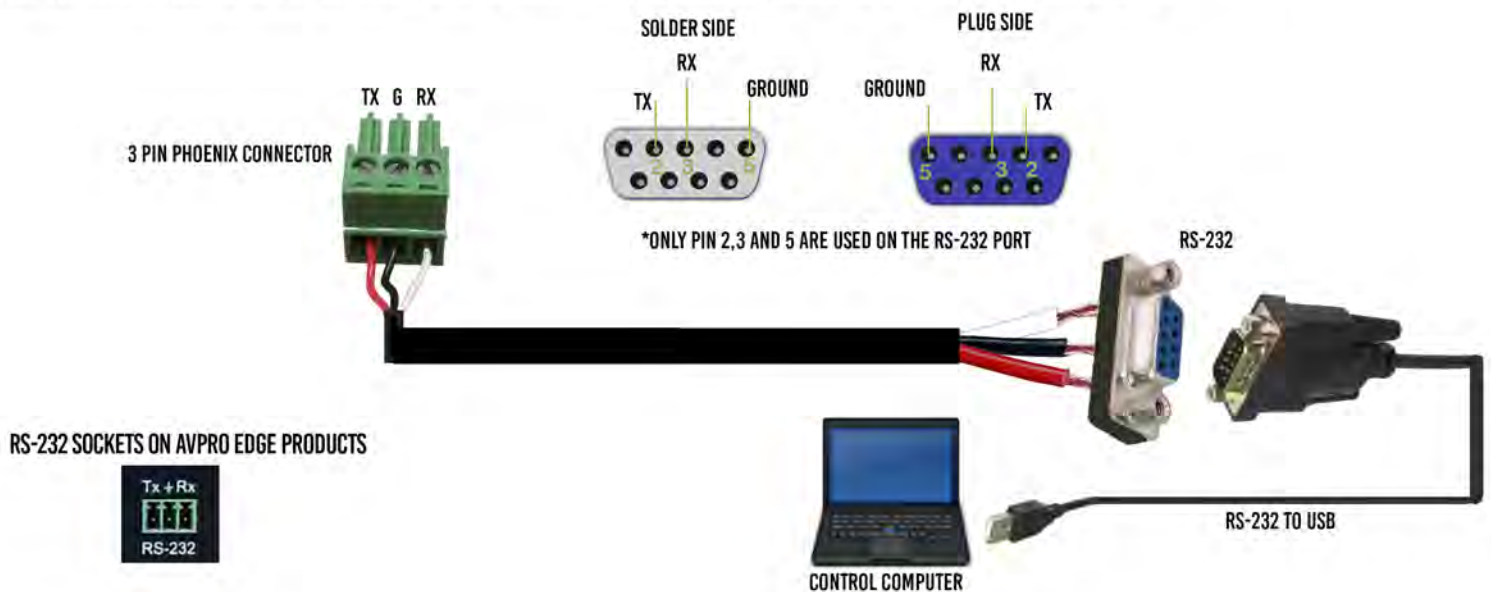
**\*NOTE:** There are two ports for RS-232 control

- **LOOP-OUT:** Use this port for additional cascaded AC-FRESCO-CAP-4 units
- **CONTROL:** Use this port to send RS-232 to AC-FRESCO-CAP-4

## RS-232 Wiring Diagram:

# RS-232 CABLE FOR AVPRO EDGE

IN ORDER TO CONNECT YOUR COMPUTER TO THE SWITCH BY RS-232 YOU NEED TO MAKE YOUR OWN CABLE WITH ONE END A PHOENIX CONNECTOR AND THE OTHER END A RS-232 PORT. YOUR COMPUTER DOESN'T HAVE A RS-232 INPUT, GET A USB CONVERTER (AS SHOWN BELOW), AND PLUG THE USB END TO ANY COMPUTER





## ▪ Troubleshooting

- Verify Power - The LED on the front of the FRESCO should be lit up RED when power is applied. Check power supply connections to device and power
- Verify Connections - Check all cables are properly connected
- Issues with 4K but 1080P or less is working
  - Verify all connected devices are capable of the signal you are sending
  - Verify that the HDMI cables you are using are certified for 4K signals

## ▪ Maintenance

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

## ▪ Damage Requiring Service

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

## ■ Support

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring

## ■ Warranty

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as “the warrantor” ) will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase ( “Limited Warranty period” ), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the “Labor” Limited Warranty period there will be no charge for labor. During the “Parts” warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.



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Thank you for choosing AVProEdge!

Please contact us with any questions. We are happy  
to be of service!



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