

# QWALL-HD

## 4X4 HDMI MATRIX & WALL SYSTEM



## USER MANUAL

QWALL-HD	4X4 HDMI Matrix & WALL System
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Designed and Manufactured in the USA

**Smart-AVI**

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# TECHNICAL SPECIFICATIONS

VIDEO	
Video Bandwidth	Single-link 340MHz [10.2Gbps]
Resolution HDTV	Up to 1080p
PC Resolution	Up to 1920 x 1080
Input Video Signal	1.2 volts
Input DDC Signal	5 volts
Single Link Range	1080p
Format HDMI	1.4
DVI Compliance	Single-link DVI-D 2.0
Output Cable Length	Up to 20 ft.
HDCP Compliance	1.0/2.0
Input Interface	(4) HDMI
Output Interface	(4) HDMI
Connector	Type A [19-pin female]
AUDIO	
Format	HDMI Digital Audio
Output Interface	3.5 mm Stereo Audio
Frequency Response	20Hz ~ 20KHz
CONTROL	
Front Panel	Push Buttons with LED Indicators
RS-232	DB9 (female) Via Control @ 9600 bps
Hot Keys	Via Keyboard
Remote	IR
Web	Web Interface
OTHER	
Power	Internal 100-240 VAC
Dimensions	17.0" W x 2.0" H x 10.75" D
Weight	4.4 lbs
Approvals	UL, CE, ROHS Compliant
Operating Temp.	+32 to +104°F (0 to +40°C)
Storage Temp.	-4 to 140°F (-20 to +60°C)
Humidity	Up to 80% (No Condensation)

# WHAT'S IN THE BOX?

PART NO.	QTY	DESCRIPTION
QWALL-HD	1	4x4 HDMI Matrix & WALL System.
PS12VD3A-WLLMNT	1	12V DC, 3A (minimum) power adapter with center-pin positive polarity.
SAVI-RMT	1	IR Remote Control
		User Manual

## QWALL-HD REAR



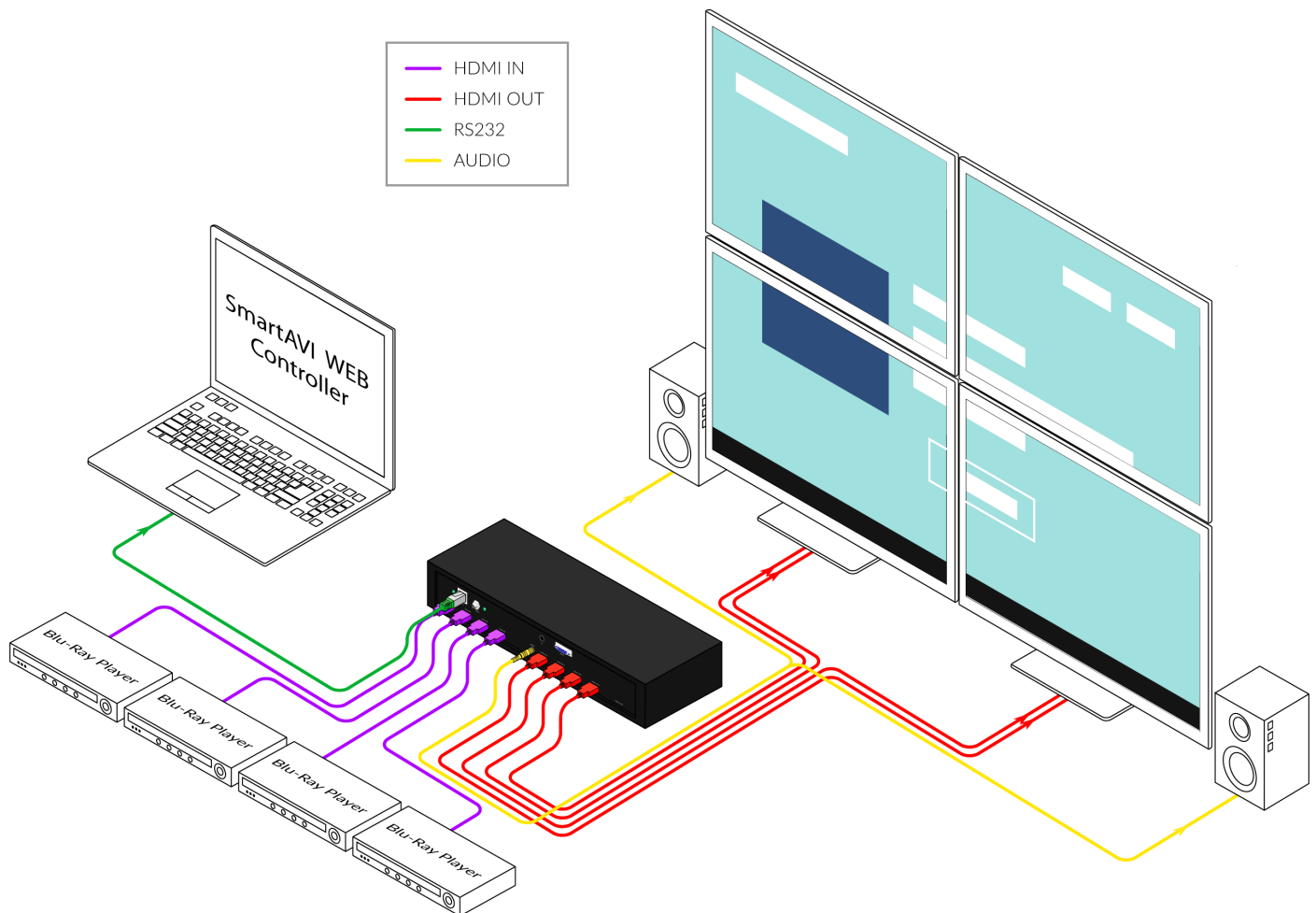
## QWALL-HD FRONT



# INSTALLATION

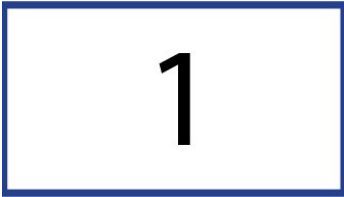
1. Make sure QWALL-HD is turned off.
2. Connect up to 4 HDMI inputs (i.e. PC, Blu-Ray Player, Digital Signage, etc.) to the HDMI INPUT ports of QWALL-HD using HDMI cables.
3. Connect up to 4 HDTVs to the HDMI OUTPUT ports of QWALL-HD using HDMI cables or HDMI-to-DVI adapters for DVI displays.
4. Connect a CAT5/CAT6 cable to the RJ45 connector.
5. Optionally connect an RS232 cable from PC to the RS-232 port of the unit for additional control.
6. Turn on QWALL-HD
7. Wait for the unit to initialize. This should take less than a minute.

# APPLICATION DIAGRAM

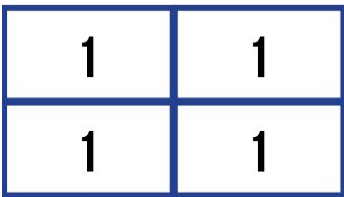


# AVAILABLE CONFIGURATION

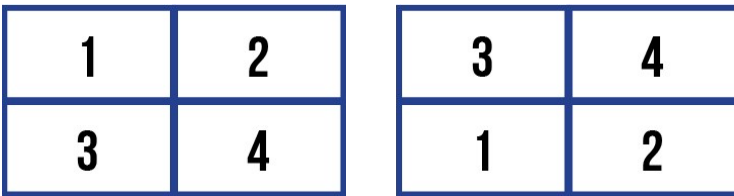
**Video Wall Mode:** User can select any of the four HD inputs and project the image across four HD screens (2x2 configuration).



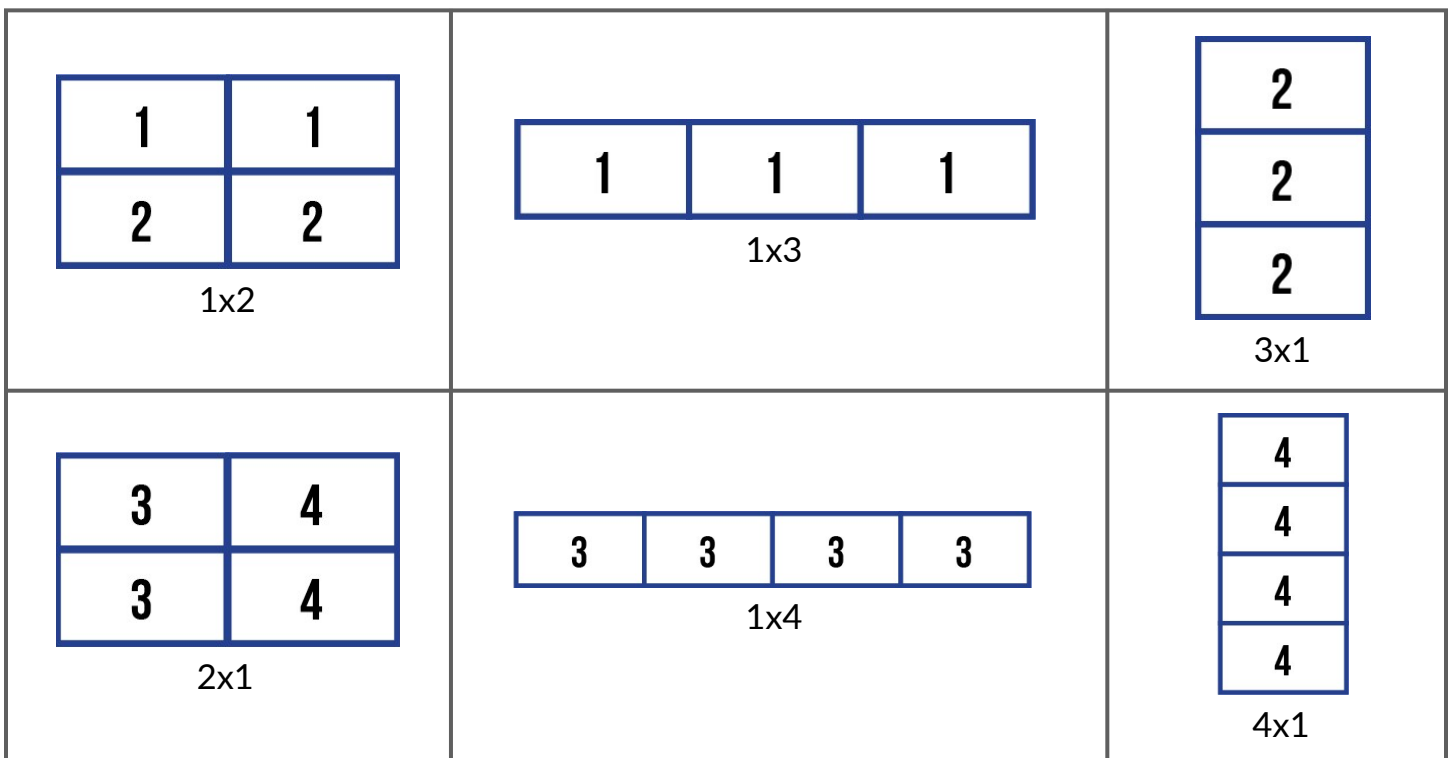
**Clone Mode:** User can select any of the four HD inputs and project the image individually on all four HD screens, with supported resolution up to 1920x1080 on each screen.



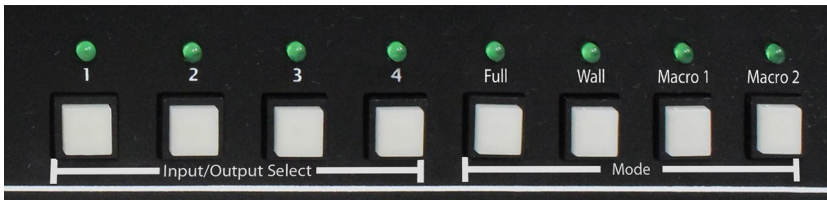
**Matrix Mode:** User can quickly assign inputs to their desired output.



**Splicing Mode:** User can splice the input to do different matrix arrays (i.e. 1x2, 2x1, 1x3, 3x1, 1x4, 4x1).



## CONTROL USING THE FRONT PANEL



There are a total of 8 buttons used for the front panel of QWALL-HD.

BUTTON	DESCRIPTION
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Matrix Mode
6	Wall Mode
7	Macro 1
8	Macro 2

The front panel supports changing between several modes, Matrix, Wall, and the preset saved onto Macro 1 and Macro 2.

To use Matrix Mode, select this mode and then select the desired Output and Input respectively. For example to set Input 1 on Output 3, the user must press Button 5 -> Button 3 (Output) -> Button 1 (Input).

To use Wall Mode, select this mode and then select the desired Input.

To use the Macro buttons, user must access the web page of QWALL-HD and set each button to a specific preset. Once the user saves the Macro button from the web, QWALL-HD will always change to the specific preset with the selected input until the user updates QWALL-HD to perform a new macro.

# CONTROL USING IR REMOTE CONTROL

COMMAND	FUNCTION
IN -> # -> WALL -> OK	Set Input '#' to Wall Mode
IN -> # -> CLONE -> OK	Set Input '#' to Clone Mode
IN -> # -> QUAD -> OK	Set Input '#' to quickly set up matrix array of all 4 inputs, with 'X' on Output 1
IN -> # -> OUT -> 1 -> OK	Set Input '#' to Output 1
IN -> # -> OUT -> 2 -> OK	Set Input '#' to Output 2
IN -> # -> OUT -> 3 -> OK	Set Input '#' to Output 3
IN -> # -> OUT -> 4 -> OK	Set Input '#' to Output 4
IN -> # -> F1 -> OK	Set Input '#' to do 1x2 splicing on Output 1 + 2
IN -> # -> F1 -> F1 -> OK	Set Input '#' to do 1x2 splicing on Output 3 + 4
IN -> # -> F2 -> OK	Set Input '#' to do 2x1 splicing on Output 1 + 3
IN -> # -> F2 -> F2 -> OK	Set Input '#' to do 2x1 splicing on Output 2 + 4
IN -> # -> F3 -> OK	Set Input '#' to do 1x4 splicing
IN -> # -> F4 -> OK	Set Input '#' to do 4x1 splicing

**Note:** # will only use 1, 2, 3, or 4





## CONTROL USING RS-232

The QWALL-HD may also be controlled via RS-232 commands. This feature requires an RS-232 card installed on your computer or a USB to RS-232 adapter. Below are instructions on how to properly create an RS-232 connection between a PC the QWALL-HD.

### Establish a connection to QWALL-HD:

1. Connect a straight- through male-to-female RS-232 cable to the RS-232 connector on the PC.
2. Connect the other end of the cable to the RS-232 port of the QWALL-HD.
3. Power on the device.

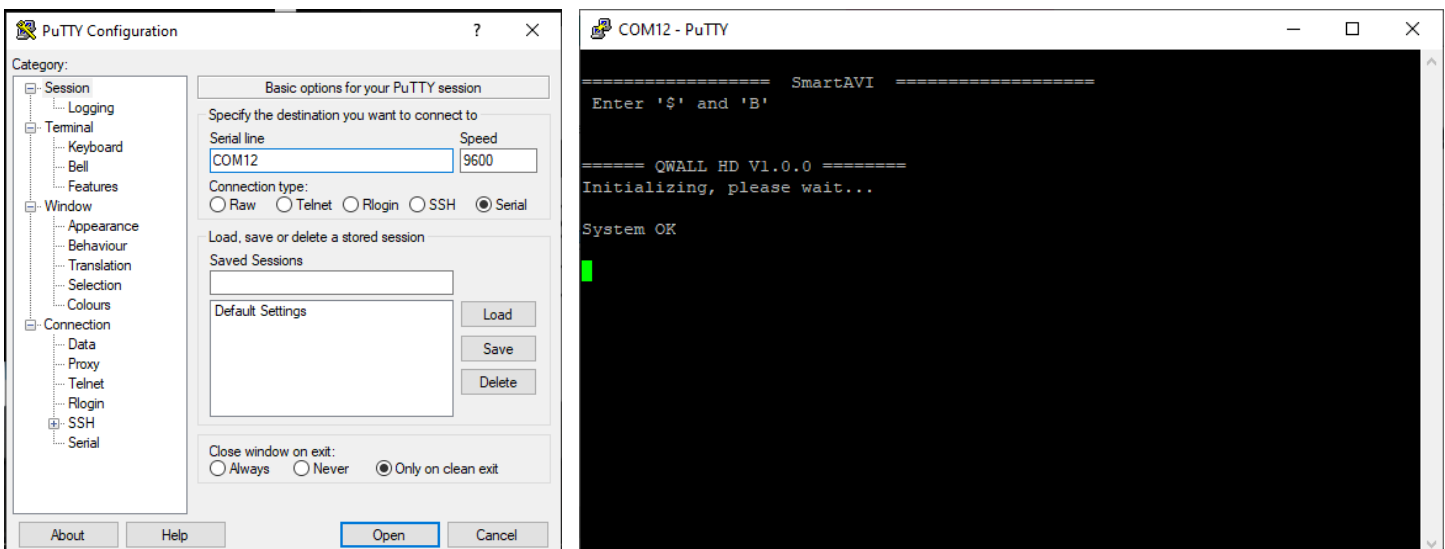
If you are using a USB to COM port adapter and need to identify the COM port used do the following:

1. Click on the start button.
2. Click on Control Panel.
3. Click on Device Manager.
4. Click on the arrow next to Ports (COM & LPT).

You should see the name of your adapter and the COM port number in use.

### Setting up the Terminal Application:

Run the terminal client of your choice such as HyperTerminal or PuTTY. Select the correct COM port on the PC. Use the following connection settings: **9600, N, 8, 1**, no flow control. Once the connection is established type ? And hit enter. The QWALL-HD should respond with a version number and a list of commands.



When you connect to the QWALL-HD to a computer via an RS-232 connection, you will see an opening screen on startup. Below are some examples of RS-232 commands.

## CONTROL USING RS-232 (CONTINUED)

Type ? To see the Main Menu list of commands.

?

QWALL-HD v1.23.10 main menu

i - system information  
v - display mode and video options  
e - edid/hotplug  
a - audio  
o - osd navigator and parts load  
? - help

Type -v to switch to the Video Menu.

-v

main -> video menu

Type -i to view System Information.

-i

Port src res EDID HPD audio

1 HDMI 1920x 540 CAT-6066 ON 0  
2 HDMI 1920x 540 CAT-6066 ON 1  
3 HDMI 1920x1080 CAT-6066 ON 2  
4 DVI 1920x 540 CAT-6066 ON 3  
Current Output: 1080P

Then Type ? to view the Video Menu.

?

QWALL-HD v1.23.10 video menu

f -set [Input] to [Output] in full screen  
q -set [Input] to quadrant 1  
p -set [Input] to main screen of pip mode  
v -set [Input] as a videowall  
fl -flip [channel] [ 1:flip | 2:unflip ]  
o -[1-1080P60|2-1080P30]  
ex -exit to main menu  
? -help

# RS-232 INTEGRATION WITH THIRD PARTY SOFTWARE

## Smart-AVI RS-232 Protocol QWALL-HD

Carriage return is represented in the examples by <CR>

The HEX code for carriage return is 0D

See Page 5 for an illustration of available modes.

All typed characters must be upper case.

1. **Video Wall Mode:** Stretch one Source over 4 screens in a 2x2 array.

//V 1 <CR>

In the above example input #1 is stretched over 4 screens.

2. **Individual Mode:** Each source will display on Individual screens. You can assign a specific input to a specific screen.

//F x y <CR>

X=input y=output

ex. //F 2 1 full mode; input 2 to output 1

3. **Quad Mode:** 4 inputs on each screen, equally displayed

//Q x <CR>

ex. Q 2 <CR>

Quad mode; channel 2 as user control

4. **Pip Mode:** 4 inputs on each screen

//P x <CR>

X=inputs in the largest screen area

ex. //P 3 Picture in picture mode; input 3 selected

5. **Reset:** Resets QWALL-HD

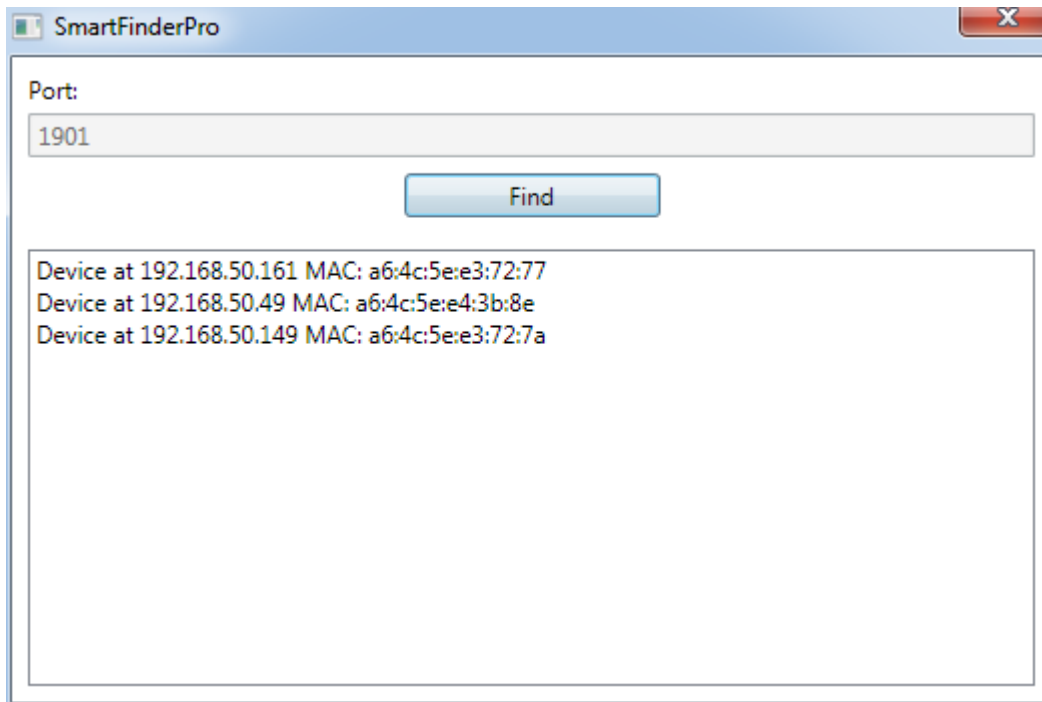
//RESET <CR>

COM Port Settings:

Baud Rate	9600
Start Bits	N
Data Bits	8
Parity	1
Stop Bits	No Flow

# CONTROL USING TCP/IP

To find the IP address of QWALL-HD, please use the SmartFinderPro application.



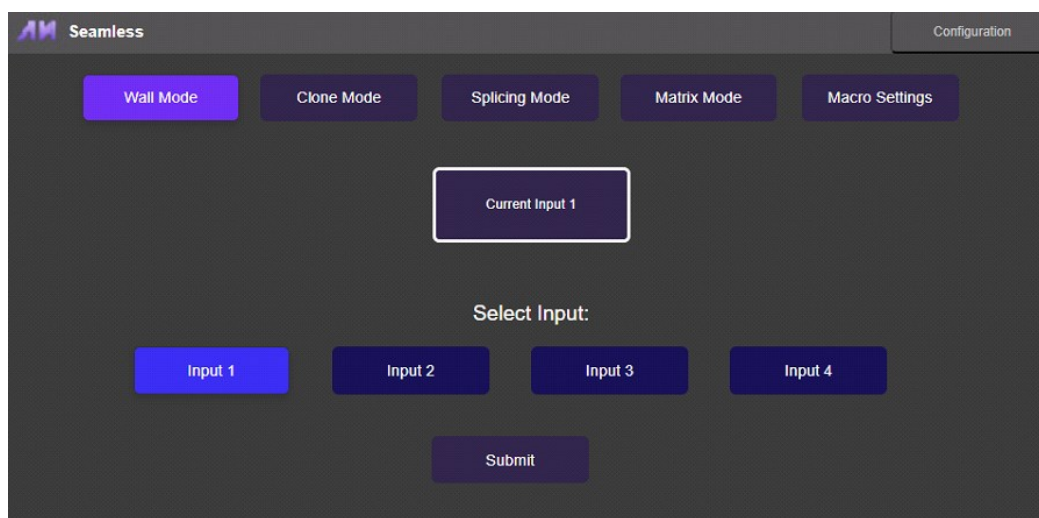
After clicking “Find”, QWALL-HD will appear in the list showing its IP address and MAC address. Users may double click the IP address on the list and it will open on the default web browser of the computer. The user will then be prompted to log in. The default credentials will be the following:

Username: **admin**

Password: **admin**

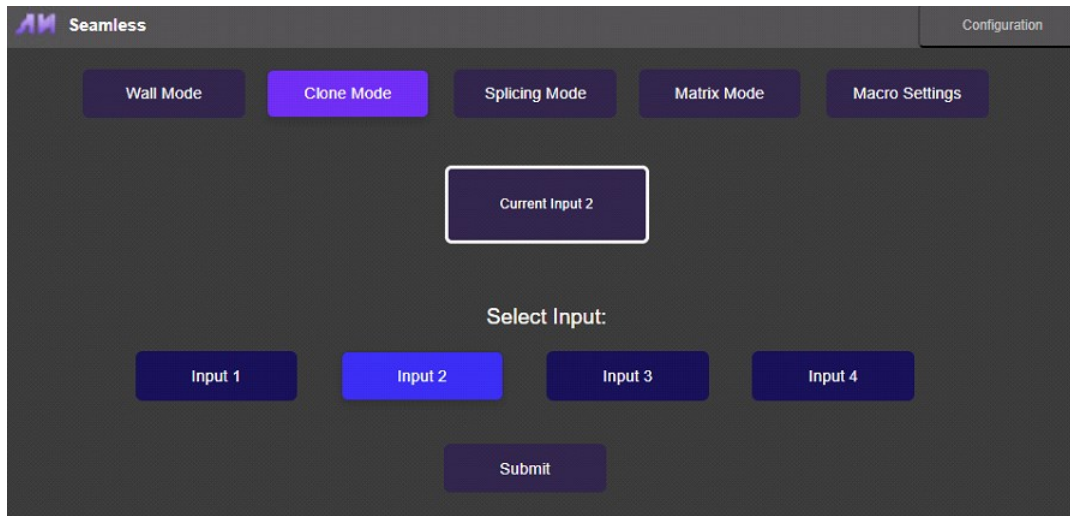
Once logged in, the user will be presented the four different modes QWALL-HD uses. Click into the mode and select the Input and/or Output when prompted, clicking Submit to send the data to QWALL-HD to change accordingly.

**Wall Mode:** Select the desired input and click Submit. This will set QWALL-HD to use all four monitors to set into video wall mode of the selected input.

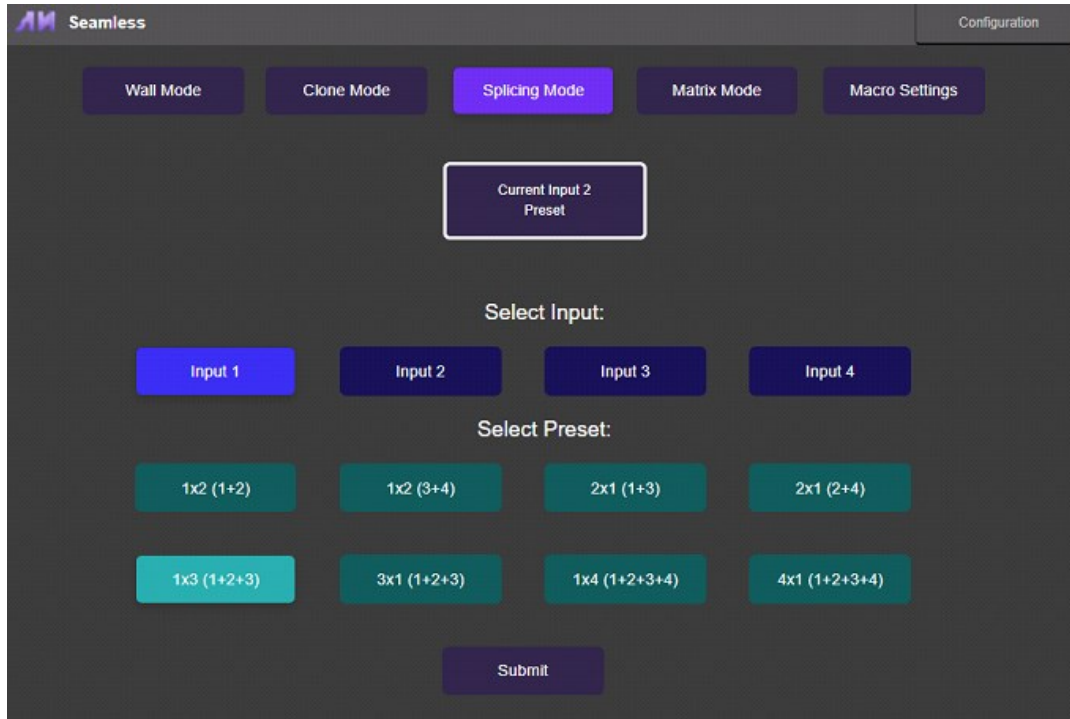


## CONTROL USING TCP/IP (CONTINUED)

**Clone Mode:** Select the desired input and click Submit. This will set QWALL-HD to use the selected input on all outputs.

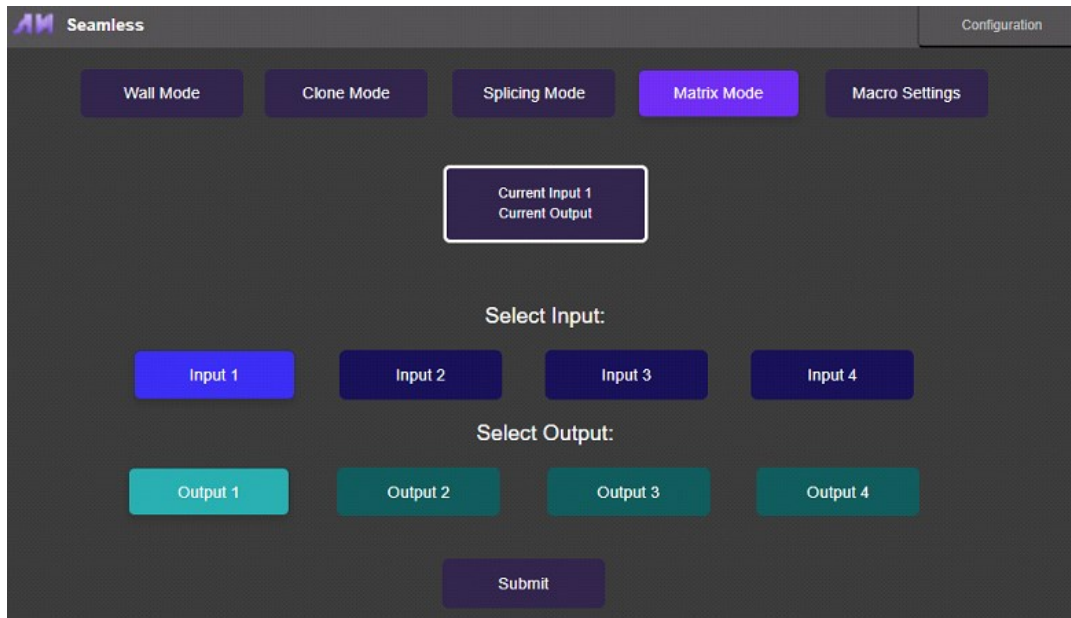


**Splicing Mode:** Select the desired input and preset and then click Submit. This will set QWALL-HD to “splice” the monitors to the selected input and preset. For example, if the user selects Input 1 and selects preset 1x2 (1+2), this will display Input 1 over Output 1 and 2. The user can then select Input 2 and select preset 1x2 (3+4) to display Input 2 over Output 3 and 4. There are many options available to use, and can even be used in conjunction with Matrix Mode.

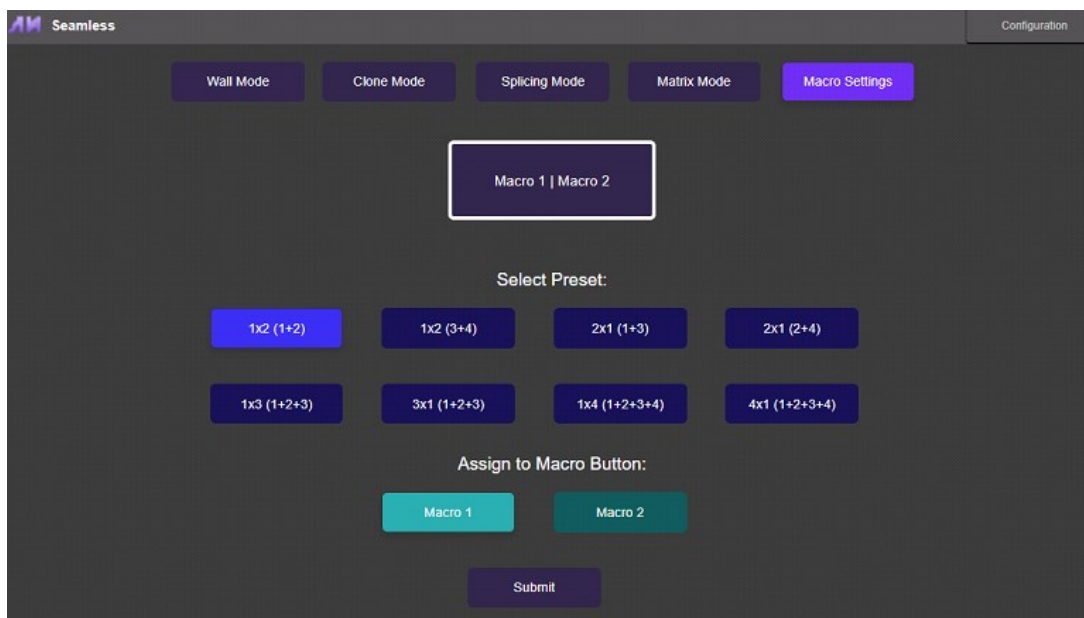


## CONTROL USING TCP/IP (CONTINUED)

**Matrix Mode:** Select the desired input and output and then click Submit. This will set QWALL-HD to individually change each monitor, allowing the user to create a matrix array of all the Inputs over all of the Outputs.



**Macro Settings:** This page allows the user to actively select and save presets onto the macro buttons found on the front panel. Button 7 is assigned by Macro 1 and button 8 is assigned by Macro 2. Simply select a desired preset, assign it to a macro button, and click Submit. This will allow the user to quickly use any “splicing” preset. Please note that the preset will also use the latest Input sent to QWALL-HD. Simply use button 1-4 to switch into any Input after using the macro button.



## WEB CONFIGURATION

By default, QWALL-HD is configured to DHCP/AutoIP. The user may update the IP address to do static. The user may also update the login credentials within this page. Both options will require QWALL-HD to perform a reboot before continuing operation.

◀ Back to Main Page

You can choose a method which device will get IP address  
(Changes will take effect after a reboot)

IP Type: DHCP/AutoIP ▼

Static IP: 192 . 168 . 0 . 7

Submask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 0 . 1

Dns Server: 208 . 67 . 222 . 222

Save and Restart Cancel

You can change the User name and Password in form bellow  
(Changes will take effect after a reboot)

Username: admin

Password: admin

Save and Restart

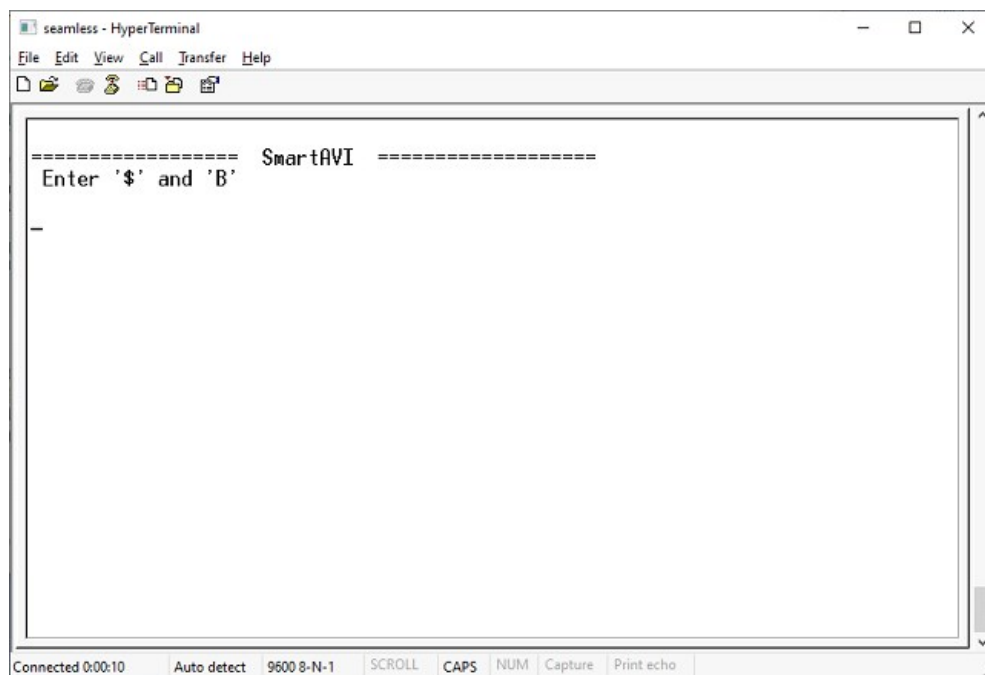
Need help? [Contact us](#)

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## FIRMWARE UPDATE

Identify the COM port on your PC and connect to the DB9 serial connection of QWALL-HD

- Open a serial console and use Baudrate 9600 (in our example we use Hyperterminal).
- Power on QWALL-HD and press ENTER until a message appears, prompting the command to send '\$' and 'B' symbols.



- QWALL-HD will now prompt the user to send the updated firmware. Transfer via YMODEM and send the latest update.
- After the download is complete, QWALL-HD will reinitialize and be ready to use again.

# TROUBLESHOOTING

## No Power

- Make sure that the power adapter is securely connected to the power connector of the unit.
- Check the output voltage of the power supply and make sure that the voltage value is around 12VDC.
- Replace the power supply.

## No Video

- Check if all the video cables are connected properly.
- Connect the computer directly to the monitor to verify that your monitor and computer are functioning properly.
- Restart the computers

## Keyboard is not working

- Check if the keyboard is properly connected to the unit.
- Check if the USB cables connecting the unit and the computers are properly connected.
- Try connecting the USB on the computer to a different port.
- Make sure that the keyboard works when directly connected to the computer.
- Replace the keyboard.

## Mouse is not working

- Check if the mouse is properly connected to the unit.
- Try connecting the USB on the computer to a different port.
- Make sure that the mouse works when directly connected to the computer.
- Replace the mouse.

## No Audio

- Check if all the audio cables are connected properly.
- Connect the speakers directly to the computer to verify that the speakers and the computer audio are functioning properly.
- Check the audio settings of the computer and verify that the audio output is through the speakers.

# TECHNICAL SUPPORT

For product inquiries, warranty questions, or technical questions, please contact [info@smartavi.com](mailto:info@smartavi.com).



# LIMITED WARRANTY STATEMENT

## A. Extent of limited warranty

SmartAVI, Inc. warrants to the end-user customers that the SmartAVI product specified above will be free from defects in materials and workmanship for the duration of 1 year, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.

SmartAVI limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:

- a. Improper or inadequate maintenance or modifications
- b. Operations outside product specifications
- c. Mechanical abuse and exposure to severe conditions

If SmartAVI receives, during applicable warranty period, a notice of defect, SmartAVI will at its discretion replace or repair defective product. If SmartAVI is unable to replace or repair defective product covered by the SmartAVI warranty within reasonable period of time, SmartAVI shall refund the cost of the product.

SmartAVI shall have no obligation to repair, replace or refund unit until customer returns defective product to SmartAVI.

Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.

SmartAVI limited warranty is valid in any country where the covered product is distributed by SmartAVI.

## B. Limitations of warranty

To the extent allowed by local law, neither SmartAVI nor its third party suppliers make any other warranty or condition of any kind whether expressed or implied with respect to the SmartAVI product, and specifically disclaim implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose.

## C. Limitations of liability

To the extent allowed by local law the remedies provided in this warranty statement are the customers sole and exclusive remedies.

To the extent allowed by local law, except for the obligations specifically set forth in this warranty statement, in no event will SmartAVI or its third party suppliers be liable for direct, indirect, special, incidental, or consequential damages whether based on contract, tort or any other legal theory and whether advised of the possibility of such damages.

## D. Local law

To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law.



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20180109



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