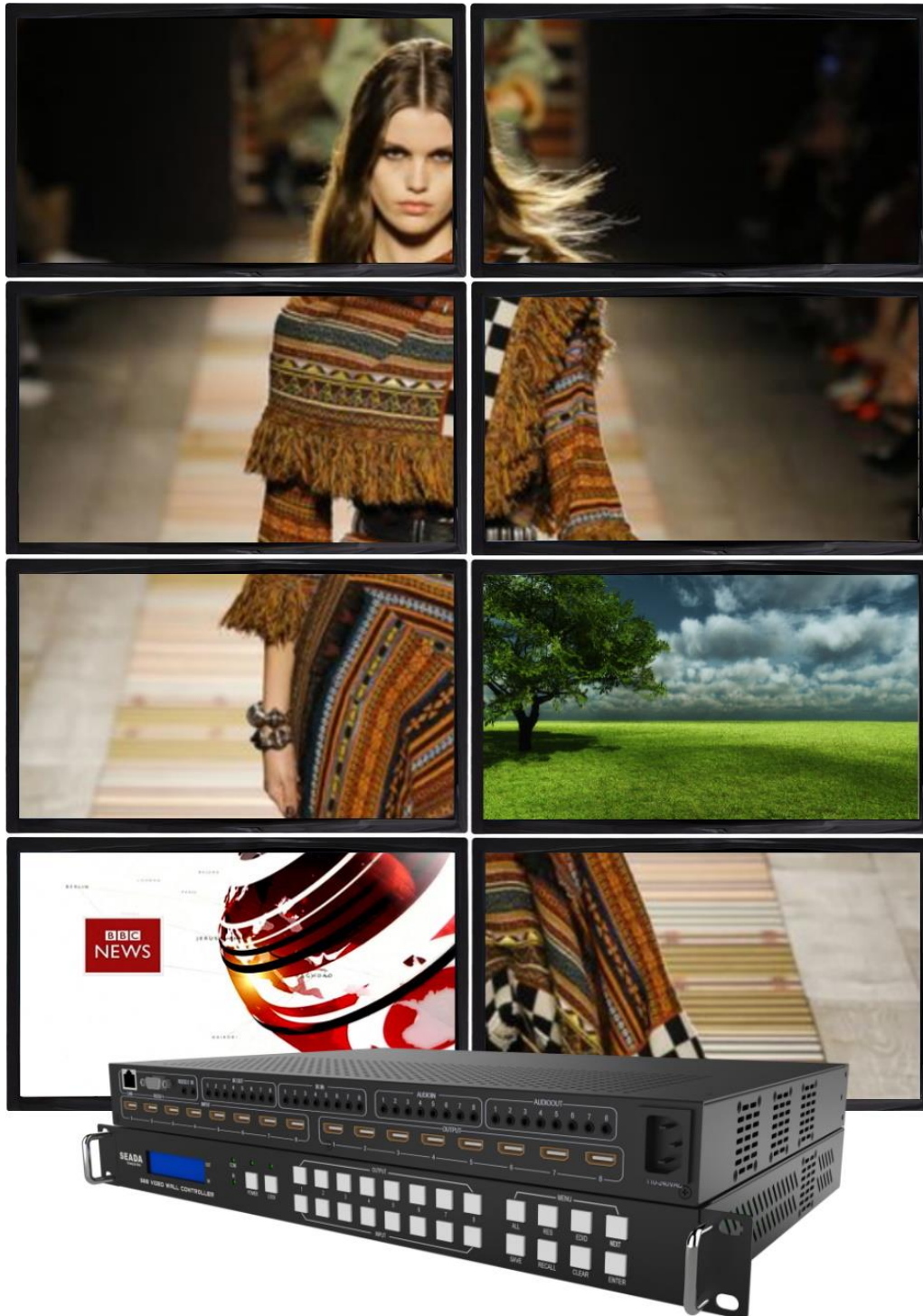# G88 HDMI User Guide

This user guide provides basic instructions for setting up SEADA G88 HDMI video wall controllers using its management software.

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G88 HDMI User Guide

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1. Product Introduction

1.1. Product profile

The G88 HDMI version of video wall controller accepts up to 8 HDMI inputs and displays them on 8 different displays, each with a resolution up to 4K@60fps 4:4:4. G88 not only allows the user to display a single input across all 8 screens, but also to display different input videos onto different screens working like a matrix switcher. It can be easily controlled via Network, RS232, remote control or front panel buttons. It supports both digital and analog audio at both input and output side.

1.2. Product capability

- 8 HDMI 2.0 inputs with embedded audio
- 8 HDMI 2.0 outputs with embedded audio
- Each input and output support resolutions up to 4K@60Hz 4:4:4
- 8 analog audio inputs
- 8 analog audio outputs
- Independent 8x8 IR Matrix
- Support audio embedded and de-embedded
- Support video wall function
- Support seamless matrix switching function
- Support EDID management
- Custom pre-set layouts for both Matrix and Video Wall Modes
- HDCP compliant
- Adjust Display settings such as Contrast and Saturation remotely
- Controllable via IP/serial port
- Controllable via front panel buttons
- Controllable via remote control

1.3. Specification & Parameters

Interface	HDMI-A
HDMI Version	HDMI2.0, HDCP2.2
Bandwidth	18Gbps
Input	800x600@60Hz,1024x768@60Hz, 1280x768@60Hz, 1280x800@60Hz,1280x1024@60Hz,1360x768@60Hz, 1366x768@60Hz,1400x1050@60Hz,1440x900@60Hz, 1600x1200@60Hz,1680x1050@60Hz, 1920x1200@60Hz,480p,576p,720p,1920x1080i, 1920x1080p,3840x2160@24Hz/25Hz/30Hz/50Hz/60Hz, 4096x2160@24Hz/25Hz/30Hz/50Hz/60Hz.
Output	3840x2160@60Hz, 3840x2160@50Hz, 3840x2160@30Hz, 3840x2160@25Hz, 1920x1200@60Hz,1920x1080@60Hz, 1920x1080@50Hz,1600x1200@60Hz, 1400x1050@60Hz,1366x768@60Hz, 1360x768@60Hz, 1280x1024@60Hz, 1280x768@60Hz, 1280x720@60Hz, 1280x720@50Hz, 1024x768@60Hz
HDMI Amplitude	T.M.D.S +/- 0.4Vpp
Differential impedance	100±15ohm
RS232/Ethernet control	
Baud rate and protocol	Baud rate：9600, data bit：8,
	stop bit：1, no parity checking
Ethernet	IE10.0+, HTML5
Power	
Max Consumption	100W, 110-240VAC
Matrix Mechanical dimensions	
Size(mm)	480(L)X300(W)X44.55 (H) including brackets
Weight	5Kg
Operating temperature	0 to 40°C
Storage temperature	-20 to 70°C
Permissible humidity	10%-50%

2. Hardware Overview

2.1.   Front Panel
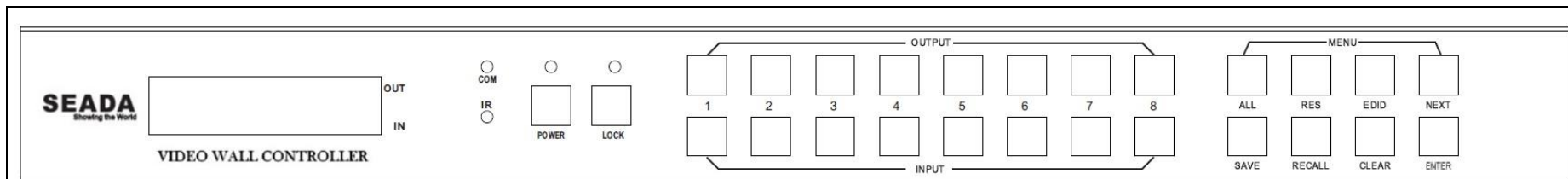
- **OUTPUT/INPUT Buttons**

Press buttons OUTPUT **x** + INPUT **y** + ENTER in order, switch input **x** to output **y**

- **Power Button**

Press and hold button for 1 second to power up the unit from standby mode
Press and hold button for more than 5 seconds to power down the unit to standby mode

- **Lock Button**

Press button more than 2 seconds and less than 6 seconds, to lock or un-lock front buttons. When locked, the Lock LED will be on.
Press button LOCK more than 6 seconds enter the input output lock menu, then press INPUT or OUTPUT button to toggle the input or output lock status, then press ENTER to confirm, Press CLEAR to exit.

- **MENU Buttons**

Press buttons ALL + INPUT **x** + ENTER in order, to switch input **x** to all the outputs, users can use this combination to switch between different inputs to the video wall
Press buttons SAVE + OUTPUT **y** + ENTER to save current matrix/video wall layout as layout **y**
Press buttons RECALL + OUTPUT **y** + ENTER in order, to recall layout **y**
Press buttons RES + OUTPUT **y** + NEXT + ENTER in order, to change output resolution on OUTPUT **y**
Resolution choices: 3840x2160@60, 3840x2160@50, 3840x2160@30, 3840x2160@25, 1920x1200@60,1920x1080@60, 1920x1080@50, 1600x1200@60, 1400x1050@60, 1366x768@60,1360x768@60,1280x1024@60, 1280x768@60,1280x720@60, 1280x720@50, 1024x768@60
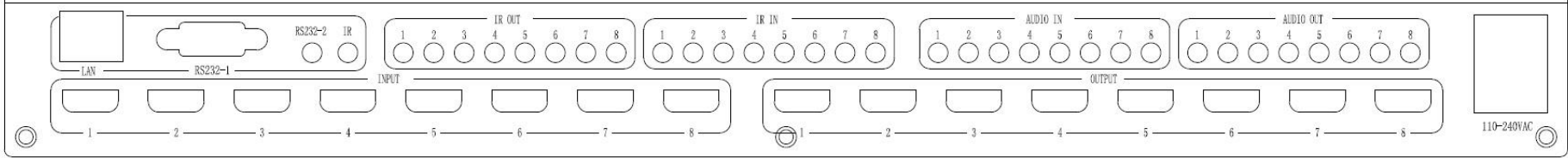Press buttons EDID + INPUT **x** + NEXT + ENTER, change the EDID mode of port INPUT **x**
EDID option: Manual, 3840x2160@60, 3840x2160@30, 1920x1200@60,1920x1080@60, 1280x1024@60, 1280x720@60, 1024x768@60
Manual EDID is loaded using G88H software
Press Clear button to cancel the current command function

Note: all these functions are also available using G88H software.

2.2.   Rear Panel

- **LAN(10M/100M/1000M) and RS232-1 Port are for PC control**
- **RS232-2 and IR-EXT ports are reserved for future development**
- **IR IN and IR OUT**

  IR IN/OUT routing follows video matrix routing

- **Audio Input**

8 x 3.5mm jack connectors to input external analog LR audio, user can select this audio to replace the corresponding embedded HDMI audio

- **Audio Output**

8 x 3.5mm jack connectors to output LR audio. Analog audio output 'n' will always output the same audio content as on HDMI OUTPUT 'n'.

- **HDMI Inputs**

8 x HDMI 2.0 inputs with embeded audio

- **HDMI Outputs**

8 x HDMI 2.0 outputs with embeded audio

- **Power Supply Socket**

110 ~ 240 VAC

3. Connection Set up

3.1.   RS232 connection

RS-232 control, baud rate 9600, DB9 connector
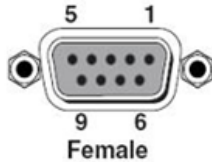

3.2.   Ethernet Connection

Connect the G88 unit with the control PC using either CAT cable. Make sure the PC is in the same group of static IP address as G88.

Left is the default IP setting of G88. Users can change the IP address once connected.

4. G88H Software User Guide

Users can run the G88H.exe software directly without installation. Software is on the disk in the package or you can download it from the SEADA website. Double click the G88H software to get the Dialog box as below
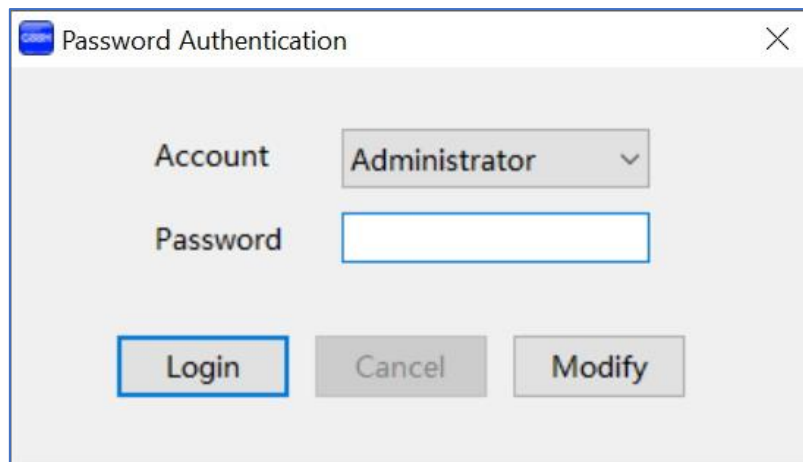
Default password for Administrator:**111111**

Default password for User: **000000**

Users can change the password here as well

1. Click drop-down list to select account: Administrator or User
2. Input current password, then click the 'modify' button to open the Modify password window

Type in new password, then click the 'modify' button to change to the new password

Once log in, the following user interface will be shown on screen. The system will remember the last connection setup and automatically try to connect the G88 system. If not, please check **4.1.1** and **4.1.2** for how to connect the unit with control PC.

There are **6** main tabs in this software to help users set up and control the G88-HDMI video wall controller.
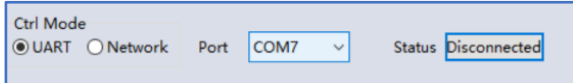
4.1. Matrix Switch

Users can connect the G88 device to control PC and set up the device as matrix switcher in this section.

4.1.1. Connect to the G88 via UART for RS232

Connect the G88 to the control PC with a serial cable (a RS232 to USB cable is included in the package)

 If the software was connected via UART (RS232) last time, software will connect to the G88 automatically vis RS232. If it was used at Network last time, a 'Network Timeout' error message will be shown on screen and users need to set up as below for RS232 connection in the software

- Choose '**UART**' instead of '**Network**'
- Select the **COM port** from the **Port** dropdown menu
- Press **'Disconnected'** button to connect

The software will check all the parts of the device. A 'Read data succeeded' dialog box will be shown on screen when finished.
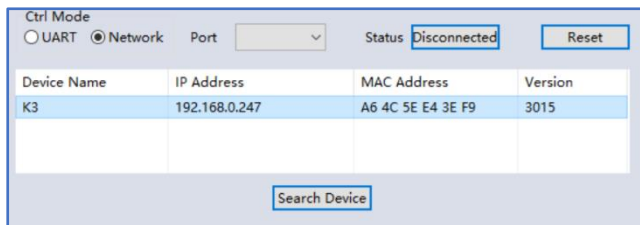
4.1.2. Connect to the G88 via Network

The default IP address for G88 controller is **192.168.0.247**, Users need to change the IP address of the control PC to the same network segment as the G88.

• Change the **'Obtain an IP address automatically'** to **'Use the following IP address'** to set up a **static** IP address of **TCP/IPv4** in **Ethernet Properties**

➢ IP address: any address between **192.168.0.2** and **192.168.0.254** except the address which has been taken by the G88

➢ Subnet mask: **255.255.255.0,** Default Gateway: **192.168.0.1**

 Connect the G88 with a CAT cable to the control PC (cable included in the package)

If the software was connected via Network last time, software will connect to the G88 automatically via network. If it was used at serial port last time, a 'Please select COM port' error message will be shown on screen and users need to set up as below for Network connection in the software

• Choose **'Network'** instead of **'UART'**
• Press **'Search Device'** button to find the G88 on the network
• Highlight the device Press **'Disconnected'** button to connect

4.1.3. Matrix Switch Routing

Users can switch and assign different inputs to the selected outputs in the matrix. The name of the input/output can also be changed by selecting the default name – Input1/Output1 and replacing it with the chosen name.


Users need to disable the video wall mode (Cancel the splicing, see **4.5.2**) to enable the matrix switcher mode.

4.1.4. Allset, Recall, Save As and Reset

- The **Allset** dropdown menu helps the users select a single input to be displayed on all the screens
- **Recall** Mode: Recall a matrix switching preset layout. The device supports maximum 7 layouts.
- **SaveAs** Mode: Save up to 7 preset layouts for matrix switching
- **Reset:** Reset the unit to default factory configuration.
- **EDID:** Users can read the EDID from the output (from the receive device, such as screen) and

apply it to the input port
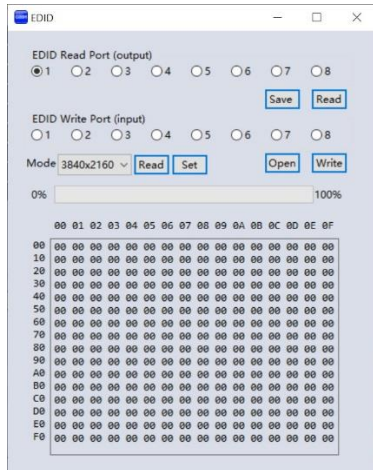
✓ **Read:** read the EDID of the selected output

✓ **Save:** save the displayed EDID after 'Read'

✓ **Open:** open an EDID from previous saved EDID

✓ **Write:** write the current displayed EDID onto selected input

to customized input EDID

4.2. Advanced Switch

Users can set up the looping between different inputs on each output
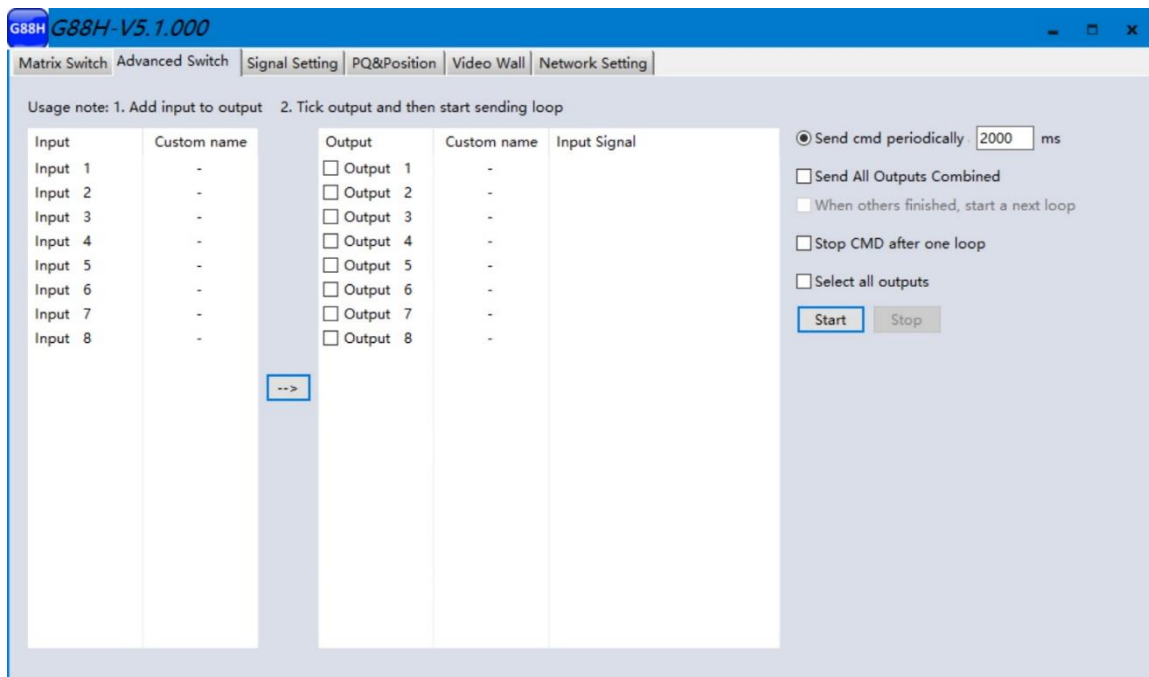
The **Advanced Switch** tab will repeatedly send a batch of command lines at the interval time specified in 'Send cmd Periodically'

1. Select one or more outputs.
2. Select one or more inputs.

3. Use the arrow button (-->) to assign that input to the selected output or outputs.
4. When all required selections have been set up, click the Start button to run the commands.

The available options are:

- **All outputs send combined** – Include all outputs that have the content from the same input as a single command.
- **When others finished, start a next loop** – Wait for all commands in the previous action having been completed before sending the next batch of commands.
- **Stop cmd after one loop** – Only send the commands only once, no looping.
- **Select all outputs** – Selects all outputs when checked. Unselects all outputs when unchecked.
- **Start** – Begin the command cycles.
- **Stop** – Stop the command cycles.

4.3. Signal setting
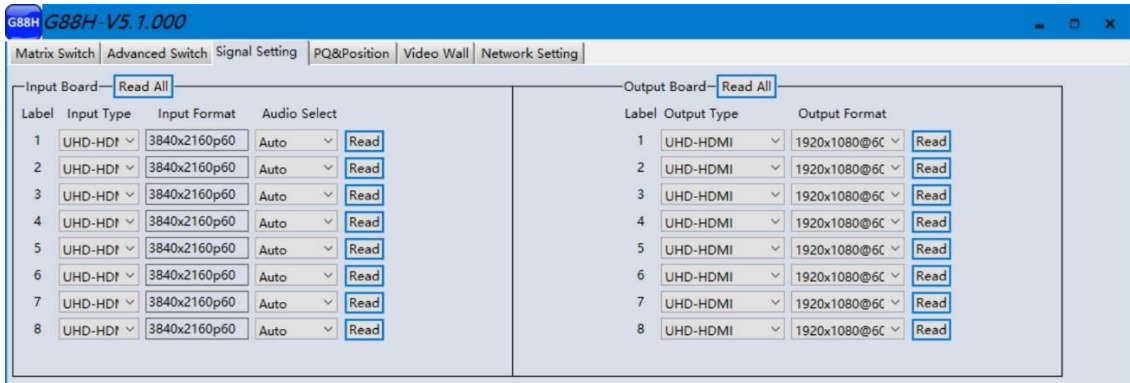
In the **Signal Settings** tab, users can use the **'Read All'** function button to recognize the type and resolution automatically. Additionally, you can also manually read one Input/output at a time – pressing the **Read** button next to the selected input will only read that input alone.

    I.   **Input Type**   Shows the input video sources type (HDMI or DVI)

    II.   **Input Format**   Shows the resolution of the input video sources

    III.   **Audio Select**

Auto: HDMI output embedded audio and analog audio output will get the audio from the embedded audio of the HDMI input to be displayed on the output channel. If the input source is DVI, the output system will get the audio from the input analog audio

External: HDMI output embedded audio and analog audio output will get the audio from the corresponding analog audio of the HDMI input to be displayed on the output channel

    IV.   **Output Type**

• UHD-HDMI   Set the respective output signal to HDMI without HDCP.

• UHD-DVI   Set the respective output signal to DVI, with no audio output

• UHD-HDMI-1.4   Set the respective output signal to HDMI with HDCP 1.4 compliance.

• UHD-HDMI-2.2   Set the respective output signal to HDMI with HDCP 2.2 compliance.

    V.   **Output Format**

Users can manually change the output resolution here to match the requirement of the receiving side (the default setting is 1920 x 1080@60, there are total 16 preset resolutions to choose from)

4.4. PQ & Position
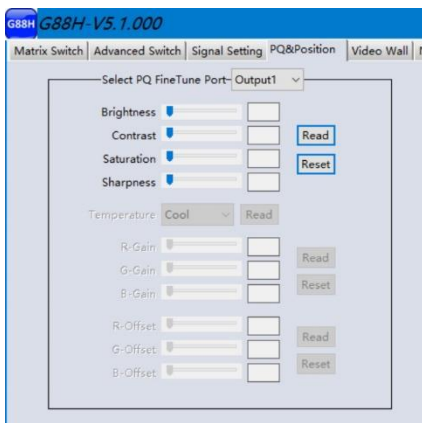
This section allows the user to fine-tune the settings of each output signal from the G88 software.

The dropdown menu at the top of the section allows the user to select which screen to apply the settings to and Adjust the Brightness, Contrast, Saturation and Sharpness sliders to the selected output to adjust the image quality of that output.

The read option reads the settings of the monitor/screen that are already in place and adjusts the values in the software, while the reset button will reset the settings to their default after they have been manually adjusted.

4.5. Video Wall
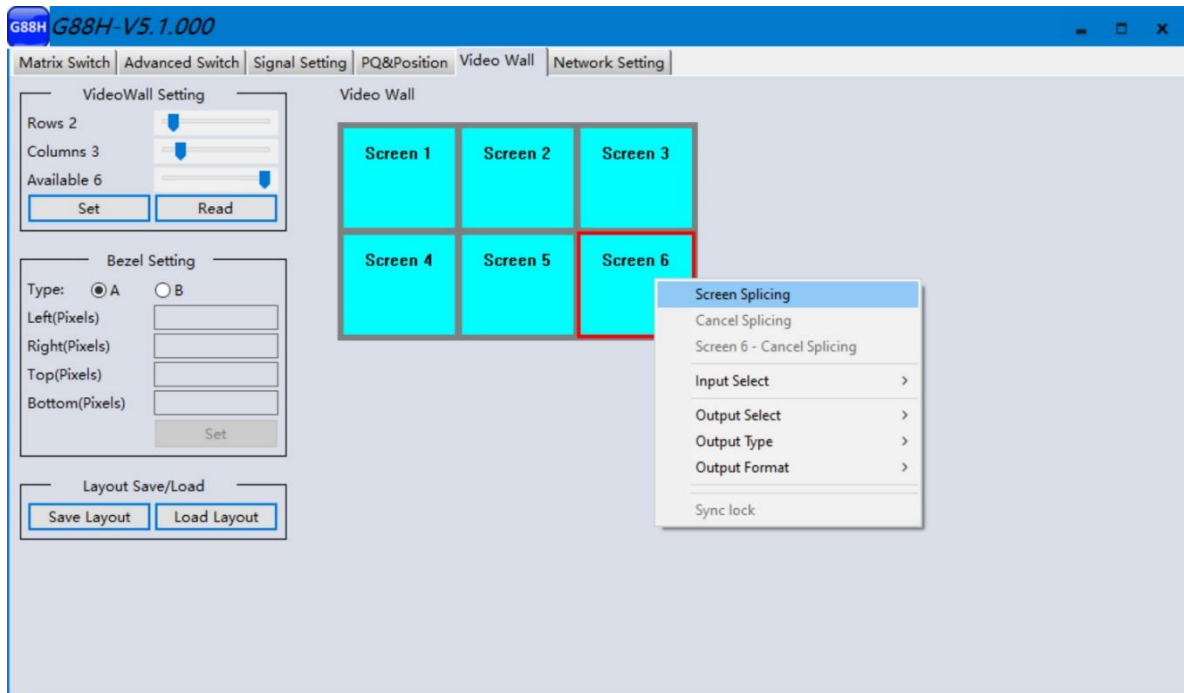
4.5.1. Video Wall Layout Setup
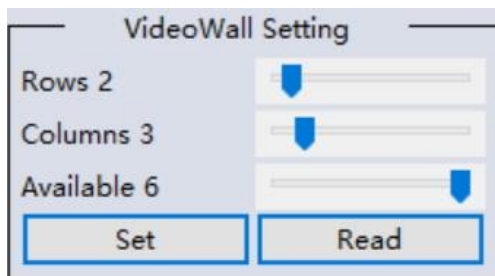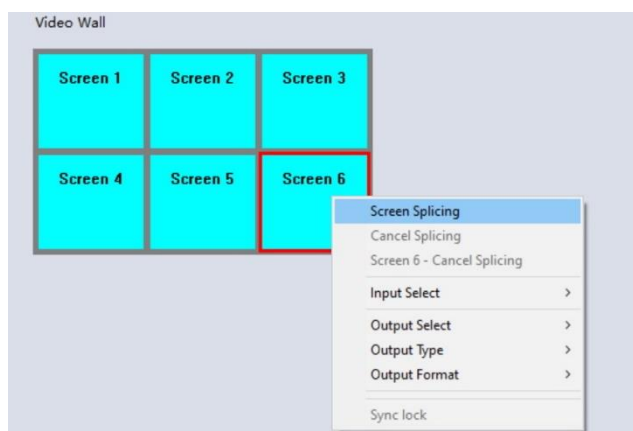

Users can set up the layout of the video wall in 'VideoWall Setting' by simply choosing how rows and columns in the video wall. Total screens amount is up to 8 for G88 video wall controllers.

4.5.2. Creative the video wall

Left click to select the screen, then drag & select the screens needed to form the video wall.

Right-click, and choose 'Screen splicing' to form a video wall

Users can create more than one video wall on G88. (e.g. they can create two 2x2 video walls instead of one 2x4 video wall or 3, 4 independent video walls)

• **Screen Splicing** - This combines the selected screens into one and displays the selected input across all the splicing screens. For example, in the setup 2x4 at left, if all of them are spliced, then the input selected by the user will be displayed across all the 8 screens.

• **Cancel Splicing –** This will cancel the video wall and revert to the matrix switching mode
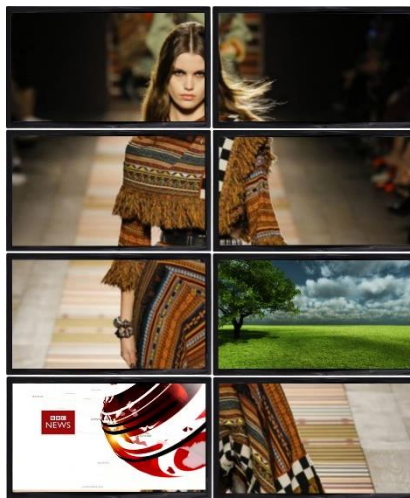
• **Screen – Cancel Splicing–** This will cancel the very screen and revert only that screen to the matrix switching mode to form a Picture in Picture effect (**See image left**)

• **Input Select –**This allows the user to control which input is displayed on video wall

• **Output Select –** The user can control which screen should be mapped to which output (only available in matrix mode)

• **Output Type –** Allows the user to adjust the type of the output (only available in matrix mode)

• **Output Format –** Controls the resolution of the output (only available in matrix mode)

• **Sync lock–** to form sync between different screens in the same video wall

4.5.3. Bezel Correction

Users can set up the bezel correction for the video walls here to compensate the frame of the screens to make the whole video wall look like one large screen without any distortion. Users can either use **pixels of the screen frame width** or **millimeter of the screen display area** to set up the bezel correction here
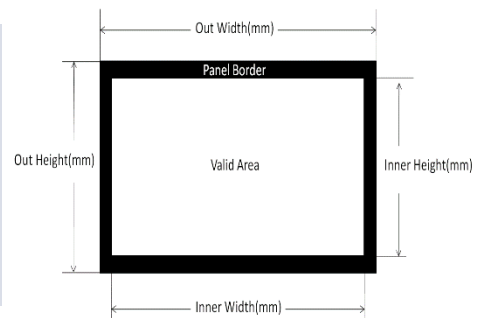
4.5.4. Save and Load Pre-set Layout

The user can save the video wall preset layouts and load it later via the **Save Layout** and **Load Layout** dropdown menu. Users can save up to 7 preset layouts here.

4.6. Network Setting

Users can find all the device network information in this section and do the modification if needed. Users can find the lost IP address using 'Find via UART' which only requires RS232 connection.

5. Remote Control

- **Power Button**

Press and hold button for 1 second to power up the unit from standby mode

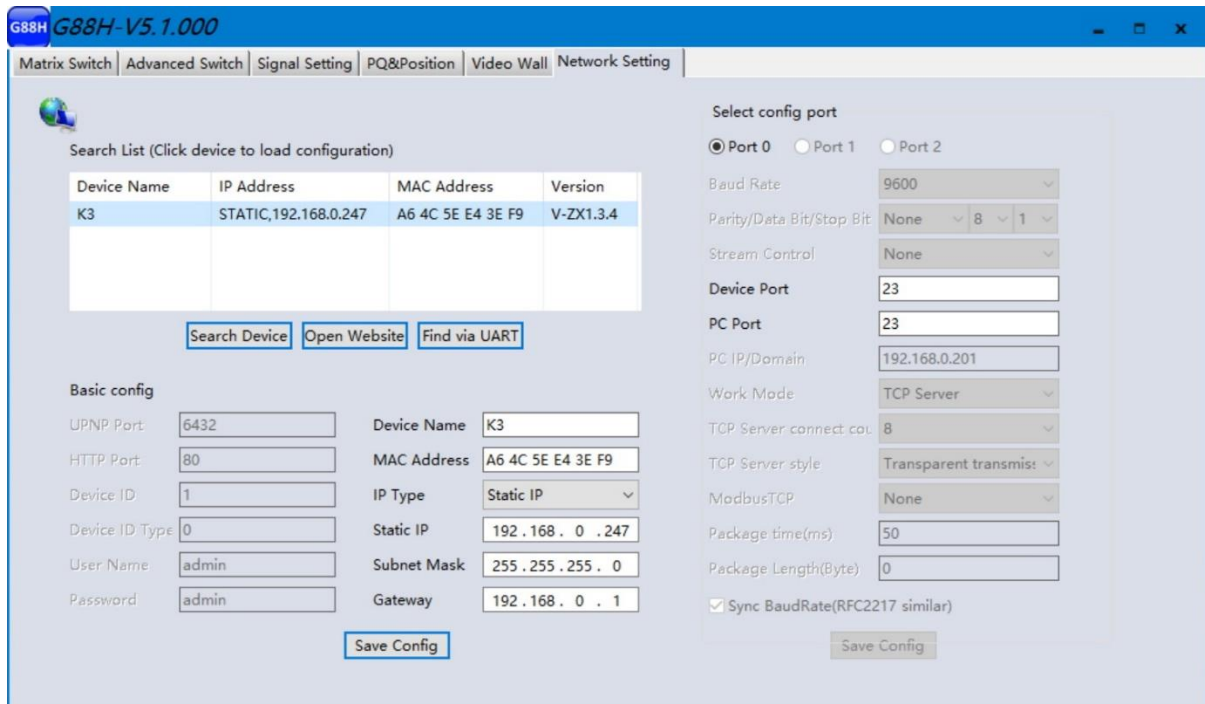Press and hold button for more than 5 seconds to power down the unit to standby mode

- **Output/Input Buttons**

Press buttons Output **x** + Input **y** in order, switch input x to output y

- **All Button**

Press buttons All + Input **x** in order, to switch input x to all the outputs, users can use this combination to switch between different inputs to the video wall

- **Save Button**

Press buttons Save + Input **y** to save current layout as video wall layout **y**

- **Recall Button**

Press buttons Recall + Input **y** in order, to recall layout **y**

- **Reset Button**
- Press Reset + All buttons in order, to reset the unit to default factory configuration

6. Troubleshooting

6.1. No Connection

6.1.1. *Ensure the G88 is powered up*

6.1.2. *Ensure the PC and G88 at the same IP group*

6.1.3. *Ensure the IP address is correct for G88*

6.1.4. *IP address of each device will be shown on screen when no video input is applied.*

6.2. No Output

6.2.1. *Ensure the video source is on*

6.2.2. *Ensure the video source device sends the signal out (G88 INPUT statue LED light will be on if input video signal presents)*

6.3. Black screen

6.3.1. *Ensure the G88 and screens are powered up*

6.3.2. *Ensure the connection to screens are OK*

6.3.3. *Ensure the screens on correct channel (DVI or HDMI)*

6.3.4. *Ensure that the inputs are assigned correctly (i.e. Input 1 on Output 1, Input 2 on Output 2 etc.*

6.3.5. *Ensure that the output resolution is set up correctly. (i.e. if the output resolution is at 4k and the screen only takes 1080p)*

7. G88H ASCII Command Lines

Note:

- All spaces shown in the command are required.
- All commands in this section are always terminated with the ASCII carriage-return character, 0x0d. This is represented by the ↵ symbol in each command.

7.1. Save Video Wall Preset Layout

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Spacer (1 Byte)	Command parameters (1/2/3 bytes)	Command tail (1 byte)
SET	Space	SYS	Space	TVWALL-MODE	Space	x/xx/xxx x is the layout number	↵ This is ASCII carriage return 0x0d

For example, Save the current route to layout 1
Send: SET SYS TVWALL-MODE 1↵   Receive: SYS TVWALL-MODE 1

7.2. Load Video Wall Preset Layout

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1byte)	Command type (10 bytes)	Spacer (1byte)	Command parameters (1/2/3 bytes)	Command tail (1 byte)
GET	Space	SYS	Space	TVWALL-MODE	Space	x/xx/xxx x is the layout number	↵ This is ASCII carriage return 0x0d

For example, Load the preset layout 1
Send: GET SYS TVWALL-MODE 1↵   Receive: SYS TVWALL-MODE 1

7.3. Read Device IP Address

Operation type (3 byte)	Spacer (1 byte)	Target (N bytes)	Spacer (1 byte)	Command type (10 bytes)	Command parameters (N bytes)	Command tail (1 byte)
SET/GET	Space	SYS	Space	IP	AT+WANN=mode,address,mask,gateway	↵ This is ASCII carriage return 0x0d

For example, GET the device IP (MAC: D8B04CB947DF)
Send: GET SYS IP↵   Receive: SYS IP D8B04CB947DF DHCP,192.168.0.119,255.255.255.0,192.168.0.1
Send: GET SYS IP↵   Receive: SYS IP D8B04CB947DF STATIC,192.168.0.222,255.255.255.0,192.168.0.24

G88 HDMI User Guide

SEADA Technology Ltd

Oak Tree Park

Burnt Meadow Road

Moons Moat North Industrial Estate

Redditch

Worcestershire

B98 9NW

United Kingdom

Email: sales@seada.co.uk

Phone: +44 (0)1527 584364

Fax: +44 (0)1527 962998