infobit
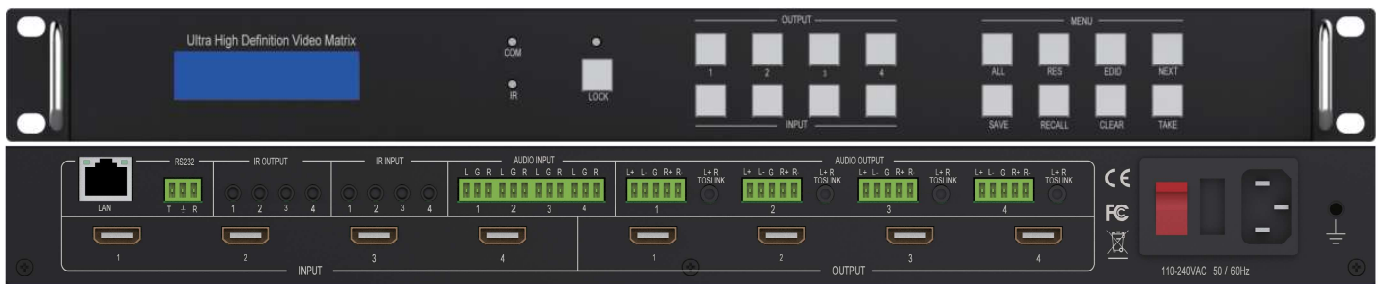
18Gbps 4x4 Seamless UHD Matrix

iMatrix H44HAW

User Manual

VER 2.1

www.infobitav.com

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.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

The 18Gbps 4x4 seamless UHD Matrix can connect 4 HDMI sources to 4 HDMI displays. Supported video resolution is up to 4K60 4:4:4. The product supports IR matrix and Audio matrix. IR matrix routing follows the video routing. Audio extract and insert are supported. The product supports CEC management and strong video wall processing.

2. Features

☆ HDMI 2.0 and HDCP 2.2 compliant
☆ Support 18 Gbps video bandwidth
☆ Support video resolution up to 4K60 4:4:4
☆ Color space: RGB, YCbCr 4:4:4, YCbCr 4:2:2
☆ Support seamless switching, video wall function
☆ Support CEC management
☆ Support audio matrix and IR matrix function
☆ Support external L/R audio insert on HDMI stream
☆ Support EDID management
☆ Support front panel, RS232, TCP/IP (LAN 10M/100M) control

3. Package Contents

① 1 x 4x4 seamless UHD Matrix
② 1 x AC Power Cord
③ 1 x Matrix IR Remote
④ 4 x IR Receiver cable (1.5 meters)
⑤ 4 x IR Blaster cable (1.5 meters)
⑥ 1 x 3-pin Phoenix Connector
⑦ 1× CAT6 cable
⑧ 1× USB to RS232 Cable
⑨ 1× User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Up to 4K60 4:4:4
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)
RS232/Ethernet Control	
Baud rate and Protocol	Baud rate: 9600, data bit: 8 Stop bit: 1, no parity checking
Ethernet	IE10.0+,HTML5
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	430mm (W)×220mm (D)×44mm (H)
Weight	5Kg
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)

5. Operation Controls and Functions

Front Panel
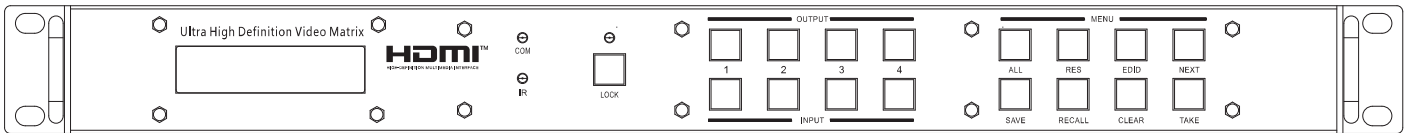
Item	Description
LCD Panel	Displays the current video selections
COM	Power LED (also indicates control commands)
LOCK	Front panel lock/unlock
OUTPUT	Output selection buttons 1~4
INPUT	Input selection buttons 1~4
ALL	Set all outputs to the next input selection
RES	Set the output scaler resolution
EDID	Set the EDID options for the next input selection
NEXT	Select the next available option
SAVE	Save the current matrix setting as a preset
RECALL	Set the matrix setting from a saved preset
CLEAR	Cancel the current command function
ENTER	Set the displayed option

- Press buttons ALL + INPUT m + TAKE by sequence, to switch input m to all the outputs.
- Press buttons SAVE + OUTPUT n to save current routing/video wall scene as scene n. Up to 8 scenes can be saved.
- Press buttons RECALL + OUTPUT n to recall routing scene n as the current routing.
- Press buttons RES + OUTPUT n + NEXT + TAKE, to change the output resolution of OUTPUT n.
  Resolution options:

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

- Press buttons EDID + INPUT m + NEXT + TAKE, change the EDID mode of port INPUT m EDID options:

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

Manual EDID is loaded by PC Tool

- Front Lock button

The front panel control buttons can be locked to prevent accidental use or operation by unauthorized persons. Press and hold the LOCK button for two seconds to lock or unlock the front panel. When the panel is locked, all buttons (except the LOCK button) will not function until the front panel is unlocked. The LOCKED/UNLOCKED state is shown on the LCD panel and by the LED above the LOCK button, which is lit when the front panel is fully LOCKED. When the unit is UNLOCKED, press and hold the LOCK button for six seconds - The LCD panel will show the following (any exiting numbers indicates that those buttons are already locked):

Output: --------

Input: --------

Pressing any of the numbered Output or Input buttons will toggle the lock status of that button. The button will become locked when the respective button number is shown on the LCD panel. When all selection are done, press the ENTER button to set the new LOCK/UNLOCK states of those buttons.

Whenever a locked Output or Input button is activated, the LCD panel will show that the button is locked. In this mode, the LOCK LED is not lit.

To unlock those buttons, repeat the above steps to remove the button numbers from the LCD panel before pressing ENTER to accept the changes.

Rear Panel
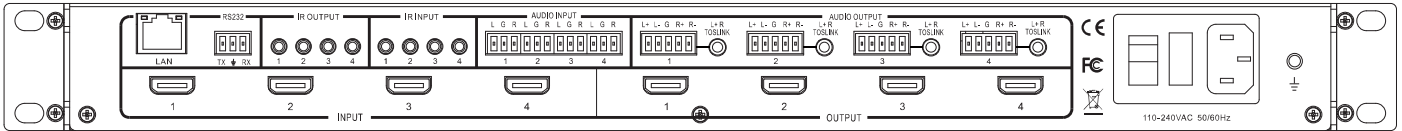
- LAN(10M/100M), RS232 are for PC control.
- Analog Audio IN/OUT ports bind to corresponding HDMI ports.
  For example:
  If HDMI 1 audio source is selected with External LR, then analog AUDIO IN LR1 (with phoenix connector) will be selected to replace the embedded audio of the HDMI input 1 data stream. If HDMI 1 audio source is selected with AUTO by PC TOOL or command, then the original embedded audio of input HDMI 1 will be used as its audio data stream. If the input is DVI signal, no matter how it is set up, system will get external analog audio input. Analog AUDIO OUT n will always output the same audio content with HDMI OUTPUT n.
- IR IN and IR OUT
  IR IN/OUT routing follows the video matrix routing, no need to separately control IR matrix.

IR extender connectors (not as accessories)
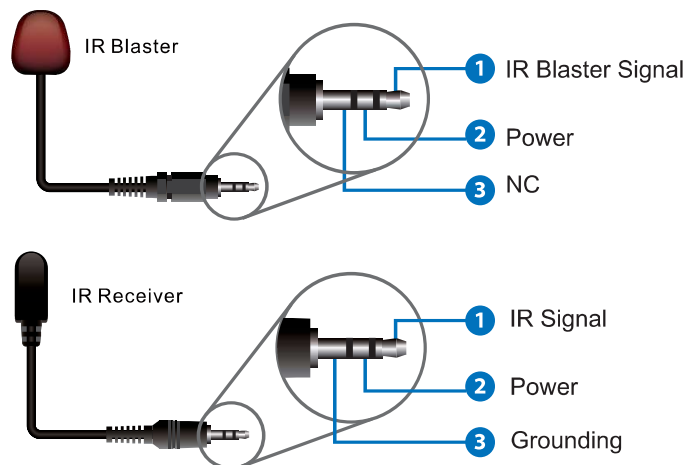
- Audio Input
  4 3-pin Phoenix connectors to input external analog LR audio, user can select this audio to replace the corresponding embedded HDMI audio.
- Audio Output
  4 5-pin Phoenix connectors to output balanced LR audio, and 4 mini Toslink jacks to output analog LR audio and digital Spdif audio.
  The 4 sets of Audio output (LR and Toslink) channels can be independent of video and switched by PC Tool or commands.
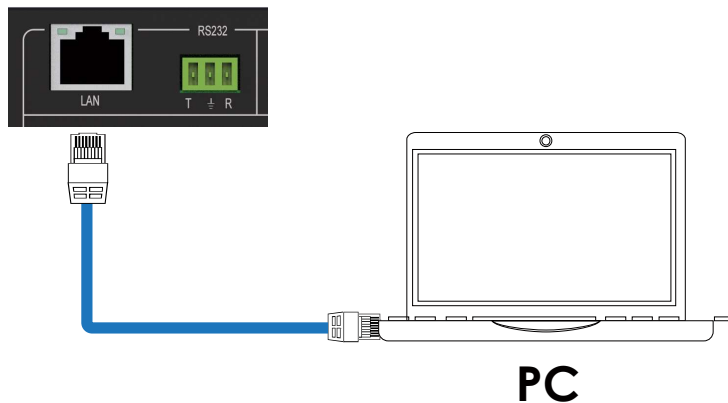
6. RS232/LAN Control Connection

6.1 RS232 Control Connection

The product supports RS232 control. Connect the RS232 port of the product to a PC via a serial cable, as shown in the following figure:
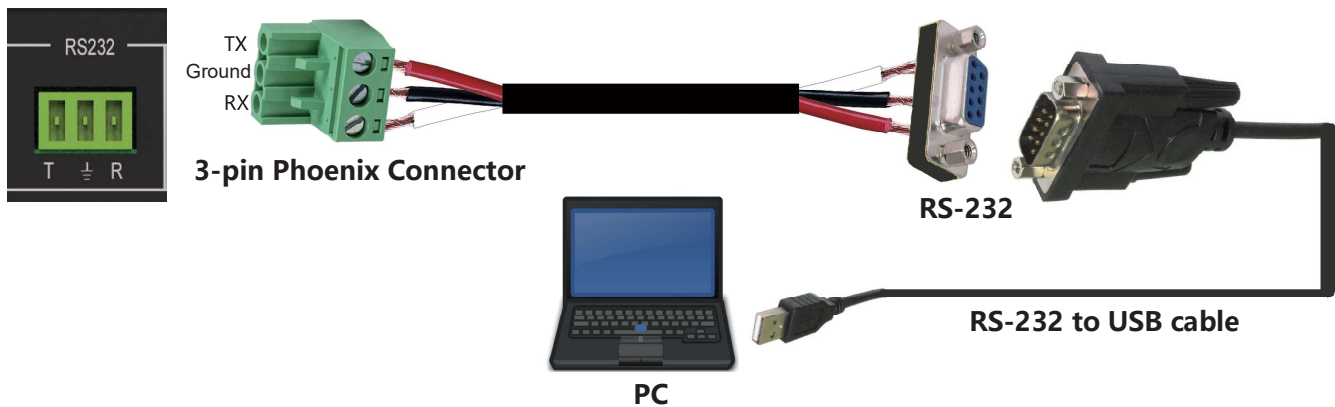
6.2 Network Control Connection

The product also supports Network control. Connect the LAN port of the product to a PC via an UTP 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

7. PC Tool User Guide

7.1 Account's Authentication

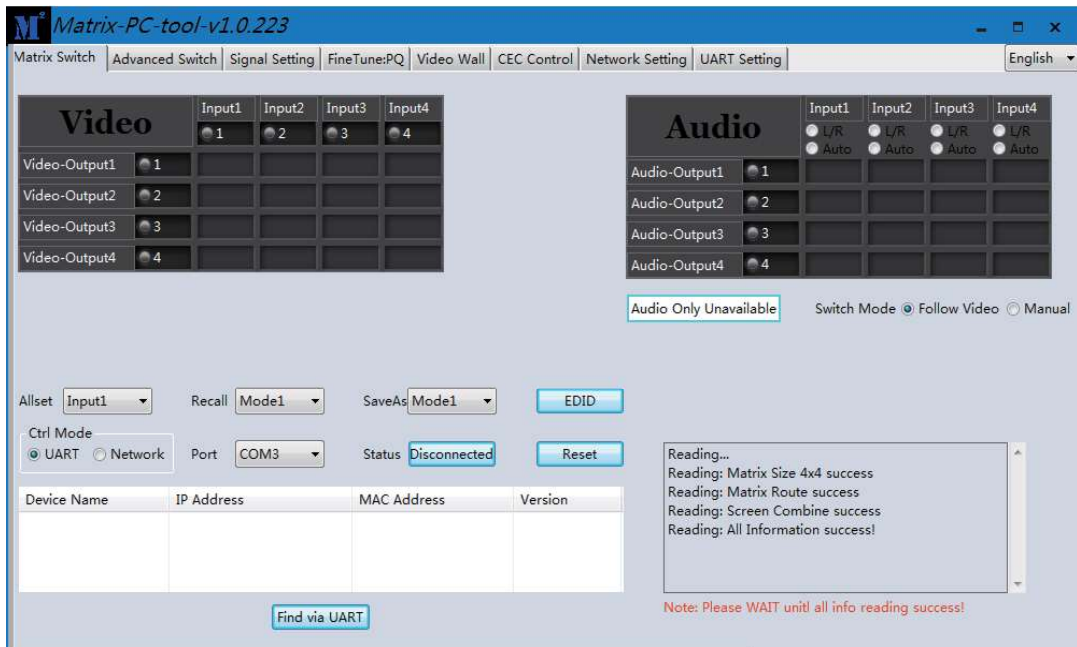Before running the PC tool, the password is needed for authentication.

Default password of Administrator（access to all features: 111111

Default password of User（access to all features, except OSD function）: 000000
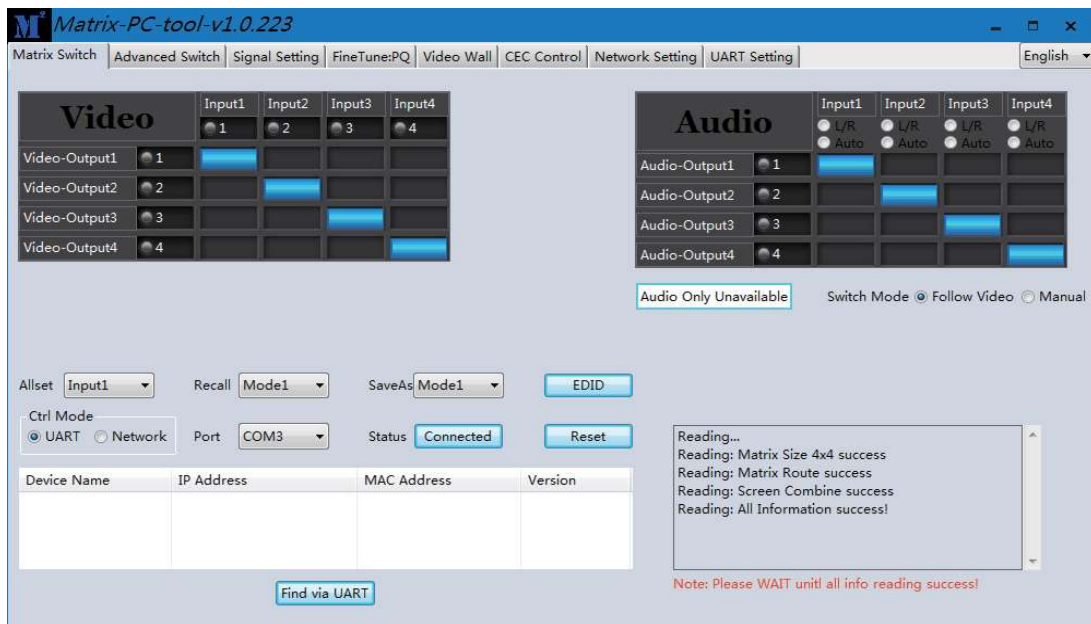
7.2 Connect with PC Tool
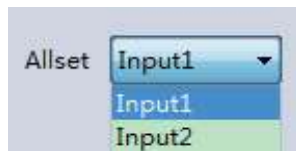
1. The default PC tool's UI style is as below.

2. You can select **UART** (with RS-232 cable) or **Network** to connect, baud rate is 9600 bps.
3. Default IP address: 192.168.0.247.

7.3 Matrix Switch Page

1. There is a shortcut button to switch one input port to all output ports, that is Allset,
   For example, switch input 1 to all outputs, user can select

2. Recall mode：Recall a input/output routing scene which already be saved before.
   The device supports maximum 8 scenes.
3. Save mode：Save the current input/output routing in one index. Maximum 8 modes supported.
   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.

4. System reset: The PC tool supports reset system to recover to factory configuration.

5. Audio Switch mode: Follow Video mode or Manual mode

When selecting Manual mode, user can separately switch L/R(Phoenix interface) and Toslink output.

User also can select to use HDMI embedded or corresponding external LR audio.

6. EDID Control: Click the "EDID" button on Matrix Switch page, there will be a pop-up EDID control window. User can do following operations:

   a) Read EDID of one output port

   b) Open one existing EDID file

   c) Write EDID to one input port

7.4 Advanced Switch Page
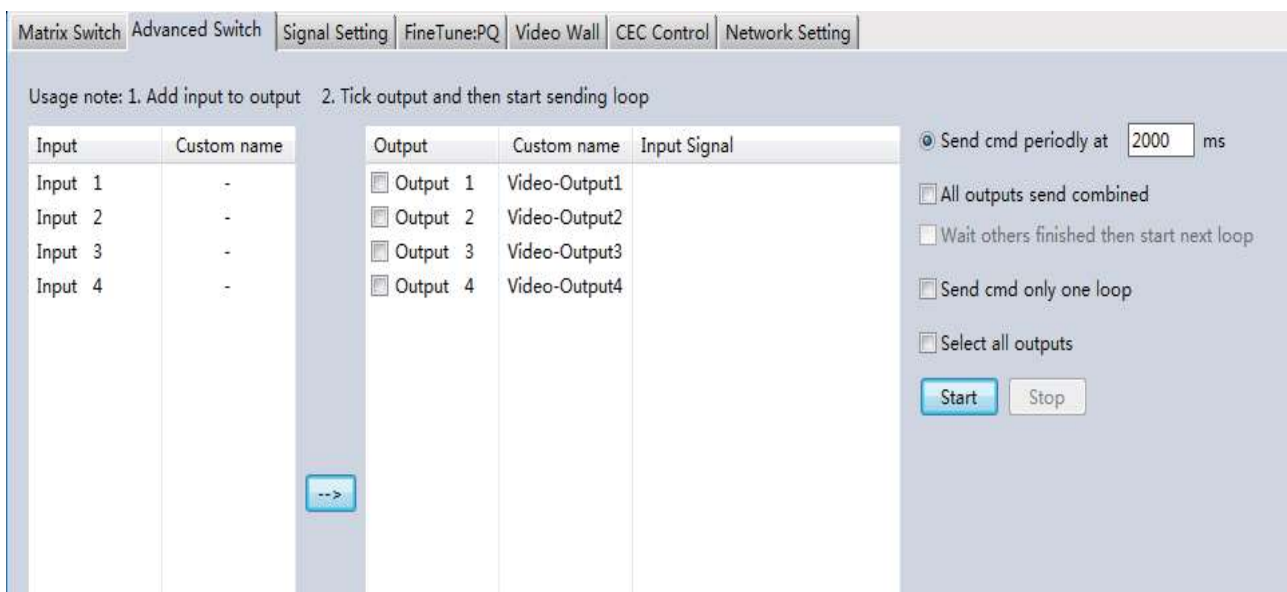
The Advanced Switch page will repeatedly send a batch of matrix selection commands at the interval specified in the value box after **Send cmd periodly** at text.

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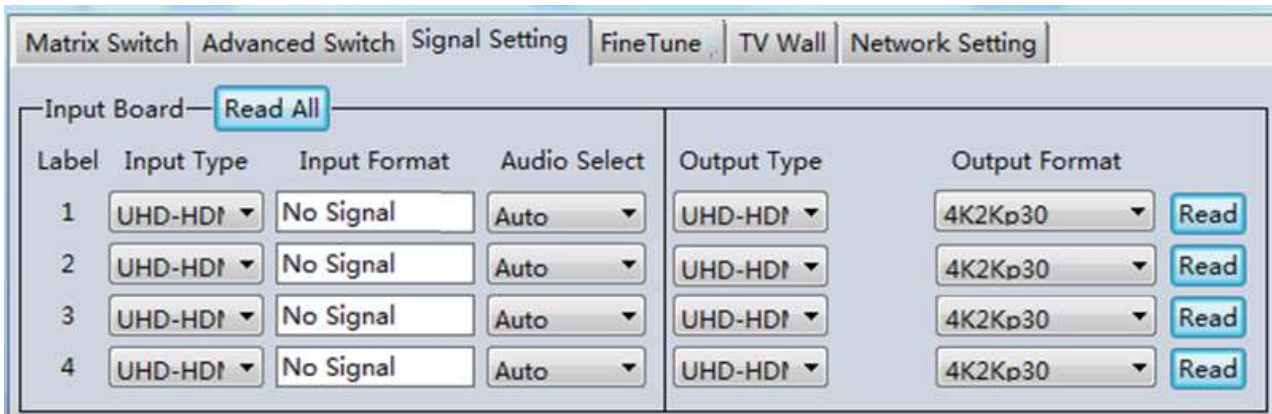
Send cmd only one loop – Only send a single batch of commands.

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

Start – Begin the command cycles.

Stop – Stop the command cycles.

7.5 Signal Setting Page

1. Audio Select

There are two options for input Audio Select.

a) 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.

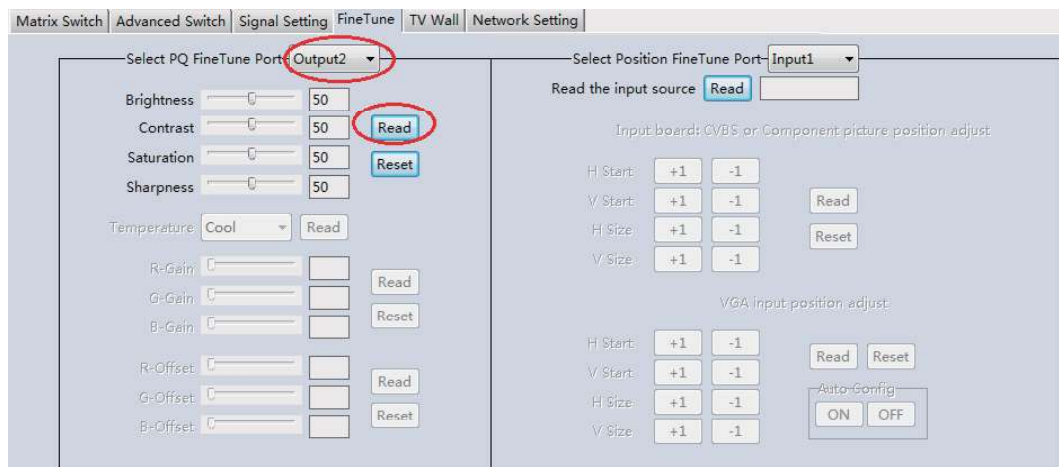b) External: System will get the corresponding analog audio.

2. Output Type

There are four options for input Output Type: UHD-HDMI (HDCP OFF), UHD-DVI, UHD-HDCP-1.4, UHD-HDCP-2.2.

3. Output Resolution: The same as the description on Front Panel page.

7.6 FineTune Page

You can read and set the Brightness/Contrast/Saturation/Sharpness of each output.
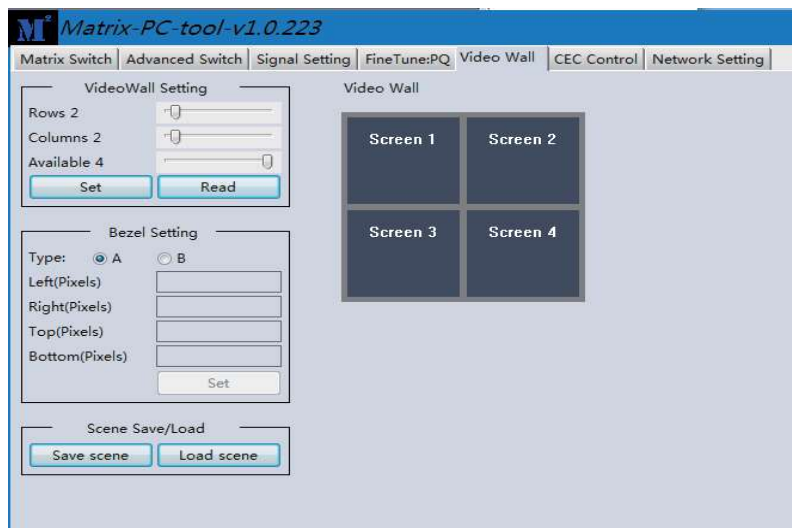

**Note:** Do not change the default settings without special conditions;
If there is a problem after changing, click "Reset" to return to the factory settings.

7.7 Video Wall Page

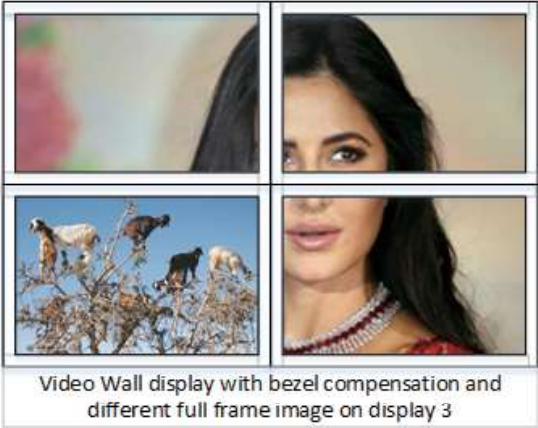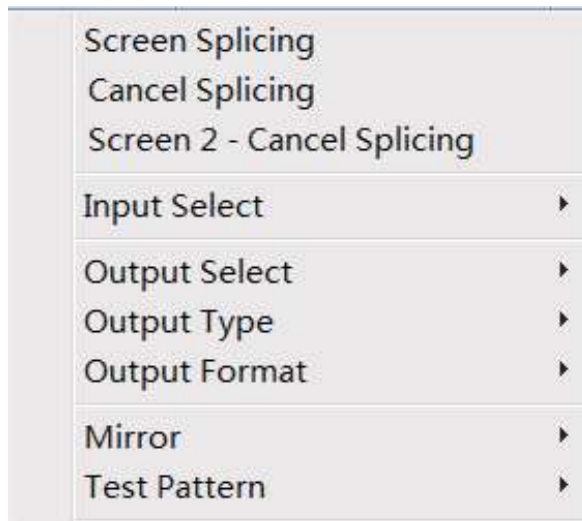This page is used to configure a group of outputs to function as a video wall.

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 the "Set" button 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 Stitching" 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. The following example shows a more unusual video wall set-up of two video walls with two 2x1 configurations:
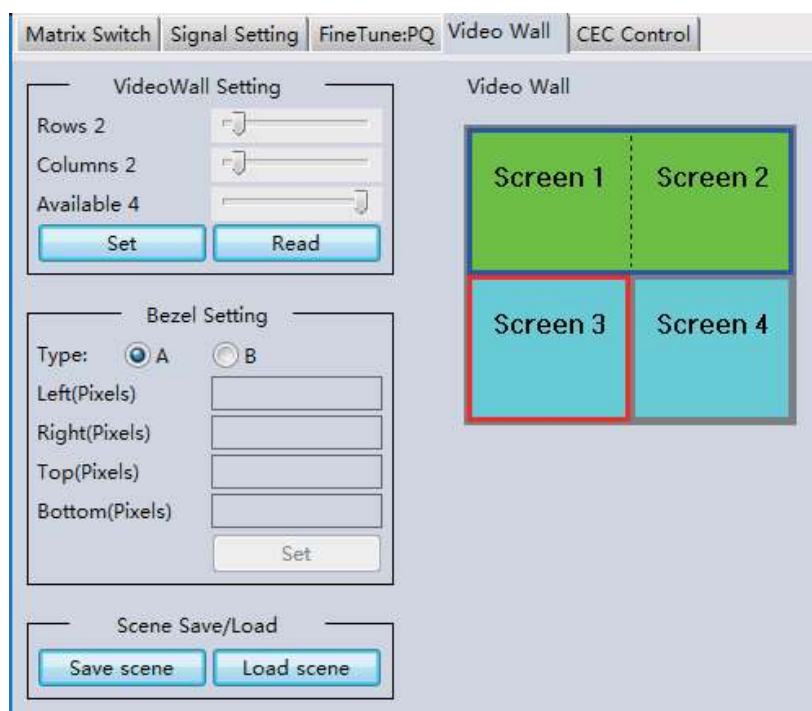
7.7.1 Video Wall Context Menu

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

Screen Stitching	This option connects the selected screens into a video wall configuration.
Cancel Stitching	Return the Video Wall configuration to normal outputs.
Screen x – Cancel Stitching	Remove the single screen x from the video wall to allow the displaying another full frame image within the video wall configuration, as shown in this example: Video Wall display with bezel compensation and different full frame image on display 3
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	Two sub options : OFF (default), ON (H+V Mirror) When select "ON", you can make 180º rotation with the selected screen.
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 milli metre (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:
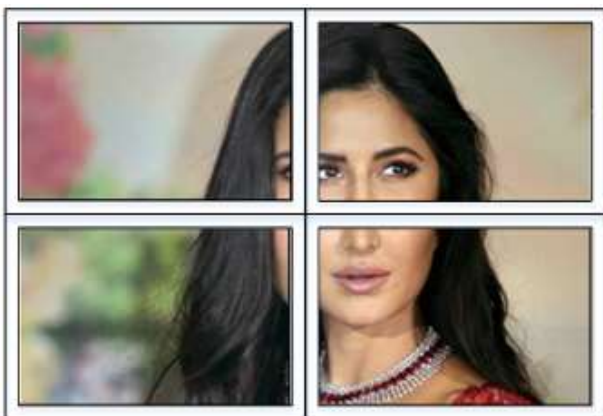

No Bezel Compensation
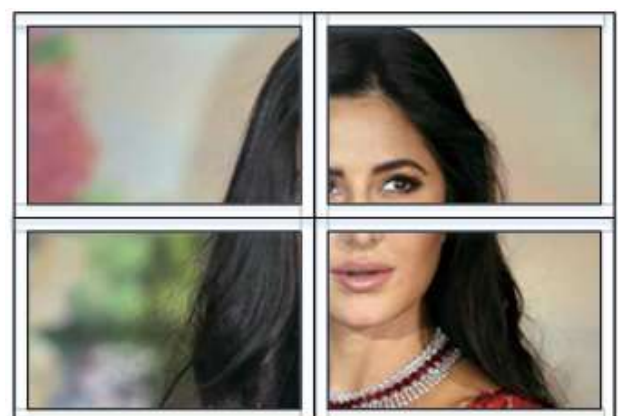
Correct Bezel Compensation

7.7.2 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.

7.8 CEC Control Page
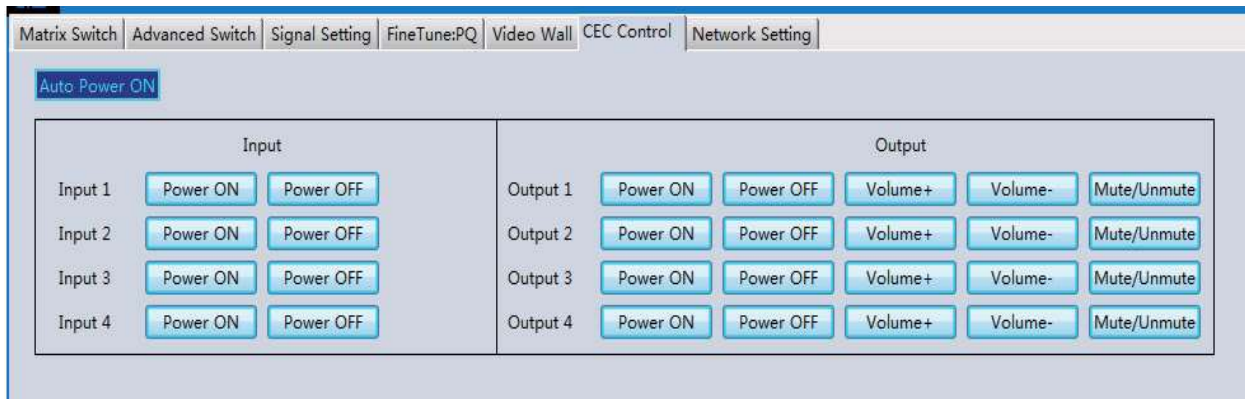
If **Auto Power On** is enabled, every time when the product is turned on, it will turn on all the sources and displayers which are connected to it.

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

8. Control via Web

The built-in Web GUI interface provides only basic control of the matrix switcher and access to the network settings. The following will be displayed when the web interface is access each time:
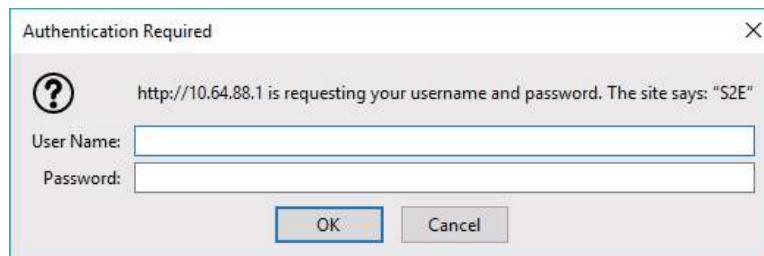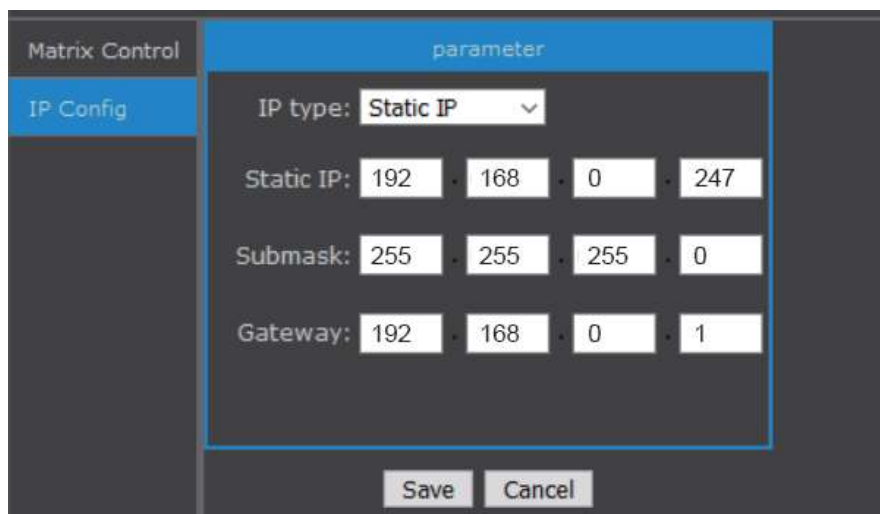

The default User Name is: **admin**
The default Password is: **admin**
After entering the **User Name** and **Password**, an interface similar to the following will be displayed:

IP Config

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.