CLAIR ILLUMINATION 16 X 16 SEAMLESS HDMI MATRIX SWITCHER

OPERATION MANUAL

Catalog

1. Multi format matrix system

1.1. Product profile

- VMHD1616 HDMI multi format mixed seamless switching matrix is a high performance video signal switching equipment, can support up to 16 inputs, 16 outputs, with inserting plate structure. This product supports multiple video formats input and output, switching, without disturbing the other output, high performance output.
- Multi format matrix using the insert plate structure, flexible and convenient installation. At the same time, with the Ethernet and RS232 communication interface, through the special control software to control the matrix signal switching, monitoring the working state of the matrix, set the signal resolution, etc..
- Seamless switching available;
- Video wall function available;
- Character overlay function: Font / color / size control available

1.2. Product performance

- Support 16 inputs and 16 outputs;
- Support HDMI/DVI input;
- Support HDMI/DVI output;
- Support a maximum resolution of 1920 x 1200@60hz;
- Provide a variety of control interface: RS232,Ethernet, Web;
- Provide control software to facilitate remote control, real-time display the input and output status.
- Scalar inside, output resolution control available;
- Support Seamless switching, Character overlay, Video wall function;

1.3. Specification & Parameters

Input	Interface type	Fiber，HDBaseT，HDMI/DVI，3G/HD/SD-SDI，VGA，YPbPr，CVBS		
	Signal and interface standard	HDMI	DVI-U	HDMI V1.3A
		DVI	DVI-U	DVI 1.0
Output	Interface type	Fiber，HDbaseT，HDMI/DVI，3G/HD/SD-SDI，VGA，YPbPr，CVBS		
	Signal and interface standard	HDMI	DVI-U	HDMI V1.3A 1024x768,1280x1024,1360x768,1280x720 1600x1200,1920x1080,1680x1050，1920x1200,
Control	RS232	RS-232 Straight	D-sub 9	Baud rate：9600
	Ethernet	Static IP, Automatic IP		
Size	W*D*H	483（mm）×365（mm）×178（mm）		
Power	AC	AC110～240VAC，50/60Hz		
	Power waste	60W—160W,depending on the installed input and output card type		
Temperature	Working temperature	0℃—50℃		

2. VMHD1616 back terminal view (HDMI board for example)

NOTE：

1. Dual AC power interface can be connected at the same time or only connect one of them; Power1 is the main power interface, and the Power2 is the auxiliary power interface; The two power has the same capacity;
2. There is one spare fuse in each power switch;

3. VMHD1616 peripheral device connection

3.1. Input and output

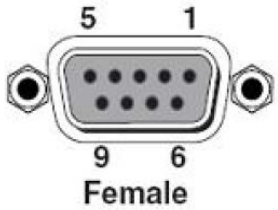
1. VMHD1616 can be configured up to 8 input boards, 8 output boards, each board supports 2 ports, a total of 16 inputs, 16 outputs;

2. The input channel is marked as IN01 ~ IN16, and the output channel is marked as OUT01 ~ OUT16; The input and output boards are fixed in the 4U case according to the categories;

3. Can select the input and output board type according to the actual needs of the project; Input board: .

3.2. Communication port and connection method

RS-232: straight cable, baud rate 9600, DB9 connector; Pin description as bellow:

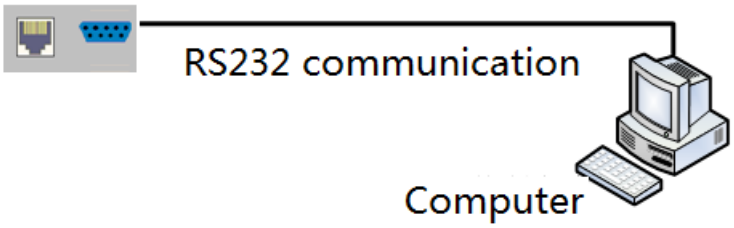


Index	Pin
1	N/u
2	Tx(Matrix→PC)
3	Rx(Matrix ←PC)
4	N/u
5	Gnd
6	N/u
7	N/u
8	N/u
9	N/u

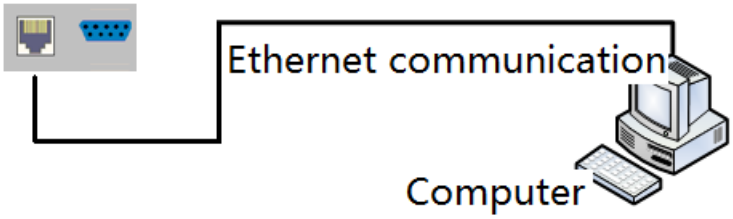
Network control interface is also available, follow the TCP/IP protocol.

3.2.1. RS232 control and connection

Baud rate 9600



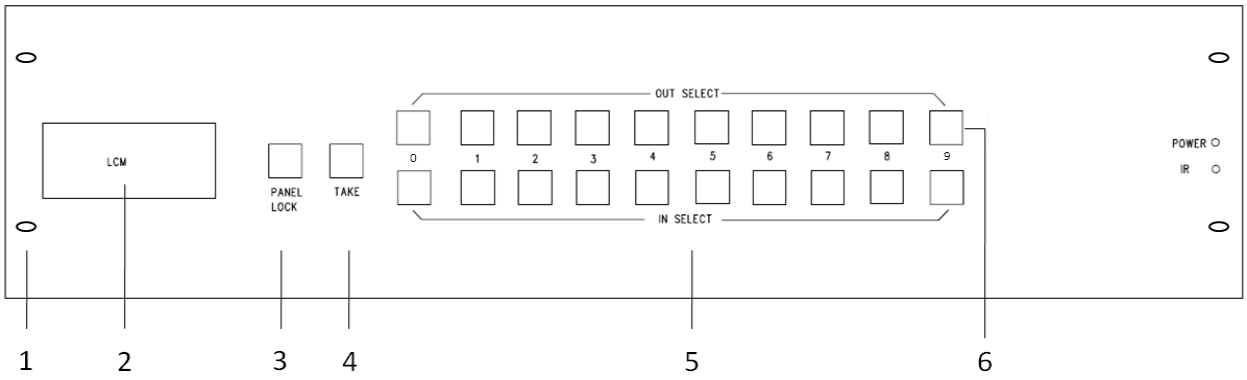
3.2.2. Ethernet control and connection



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

3.2.3. Front panel



1. Mounting hole, for fixing.
2. LCM display: display the output status of the matrix.
3. Panel Lock key：When the button is activated, the key light is on, and the button OUTPUT1,2,... keys can be used to query the input and output corresponding state, the other keys are locked. Press the key again, the light is off, unlock, can normally perform the key operation;
4. TAKE key：Executive key, press this key to executive key function;
5. Output key area（OUT SELECT）：Keys for selecting output ports.
6. Input key area (IN SELECT)：Keys for selecting input ports.

Example：

Switch the input 6 to output 2：

(1) Check whether Lock key LED is on or not, if on then press LOCK key to unlock the front

panel;

(2) Press Output key [0] [2] ,the LCM display as follows:

```
OUT:2
 IN: 2
```

NOTE: Means the output 2 current input is input 2

(3) Press input key [0] [6] , the LCM display as follows:

```
OUT:2
 IN:<<6
```

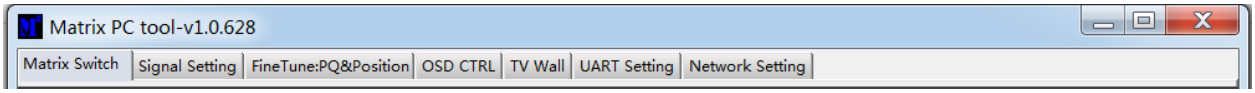
(4) Press [TAKE] key, executive switching

(5) Finish switching process, the LCM display as follows:

```
OUT:2
 IN:6
```

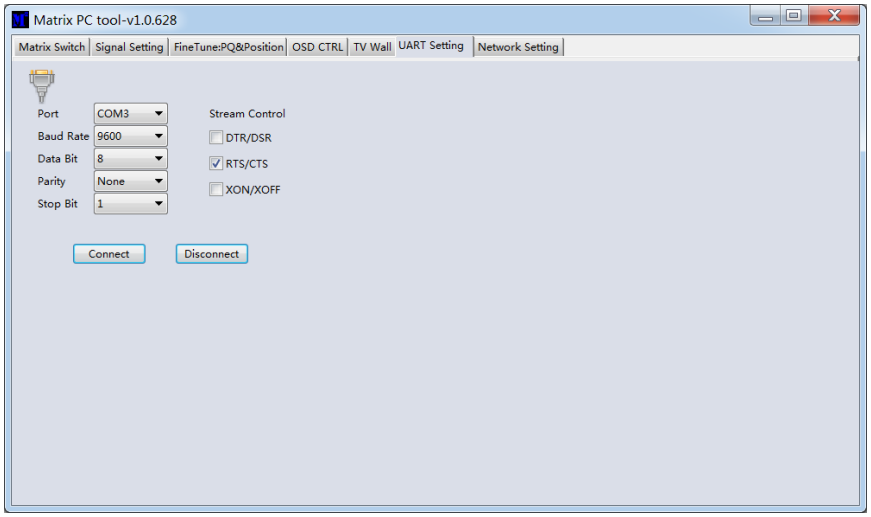
4. VMHD1616 PC tool user guide

The PC tool no need installation, support for serial control and network control. It is divided into seven parts: Matrix Switch, Signal Setting, Fine tune: PQ &Position, OSD CTL, TV Wall, UART Setting, Network Setting. The UI as follows:



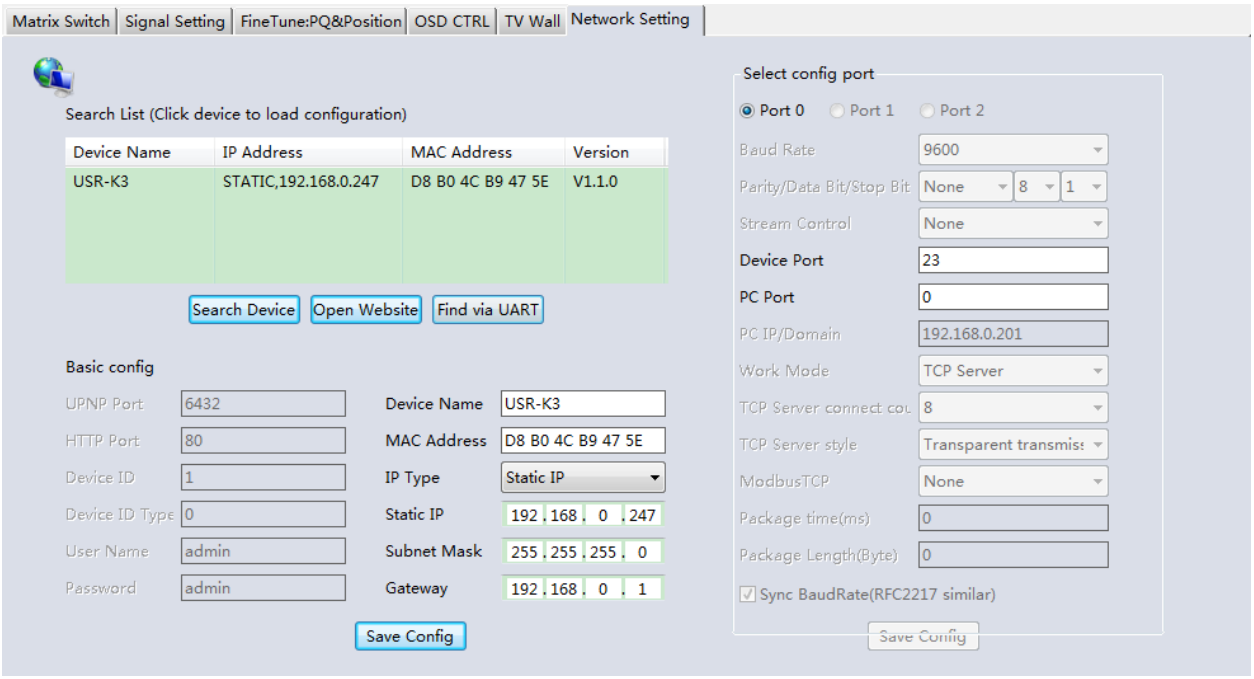
4.1. UART Setting

The baud rate is 9600, the cable is straight cable;

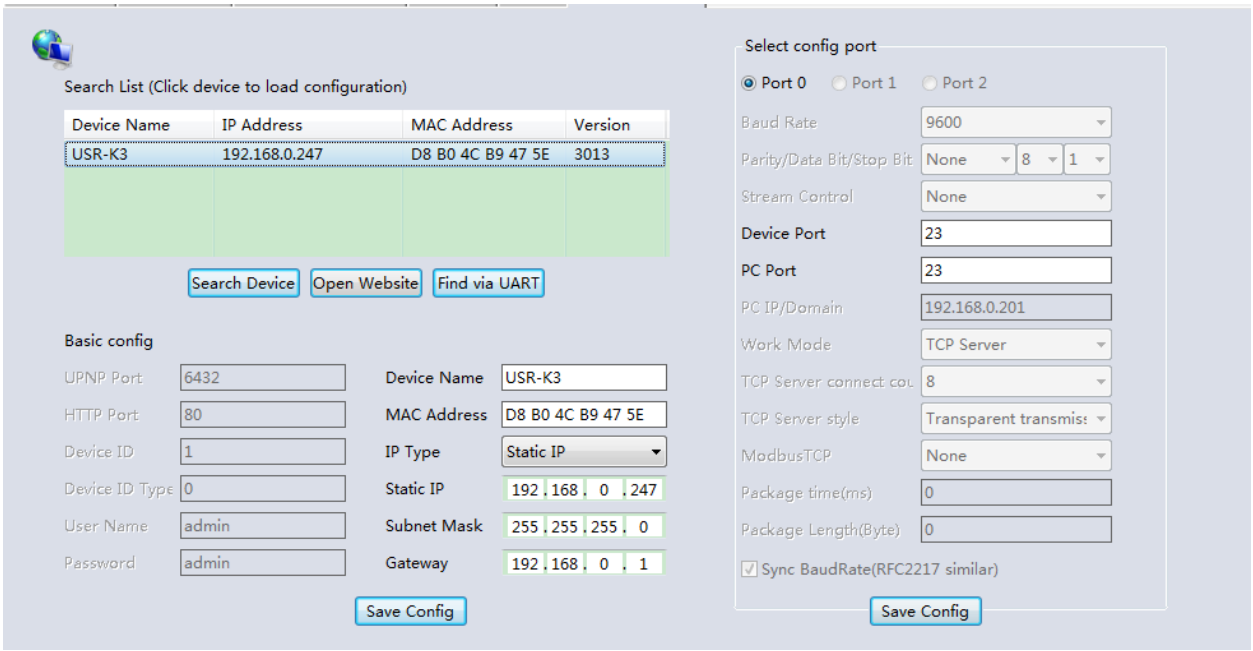


4.2. Network Setting:

1. After PC connected to device via UART, press “Find Via UART” to load the configuration of the device：
   By this way，only can modify IP Type and IP address，but no network connection needed.



2. Search and load configuration via network：
   After connect PC and device to a same LAN，press “Search Devices” to search all the matrix that connected to the local area network, the default name of the matrix is “USR-K3”;



Select the device, will display the matrix’ s network board information. User can edit the device’ s name, in order to better identify matrix. User can set dynamic IP/ static IP, subnet mask, gateway and other network information. At the same time, user can also set the device port. Serial port baud rate is 9600 (the user cannot change the baud rate, otherwise it will lead

to the network control failed).

4.3. Control Mode selection:

- **UART:**

User can select the UART, and select the right COM port, then can control the matrix via UART; If connect to the matrix success, then will display the matrix routine information. If connect failed, please check as follows:

(1) Check the cable is straight cable or not, and check whether the cable is ok or not;

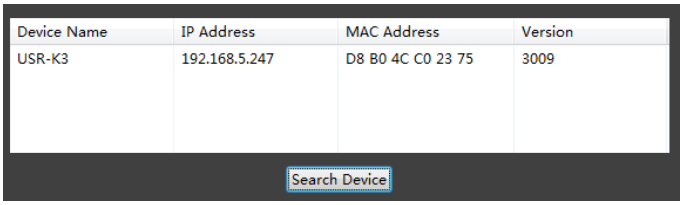
(2) COM port that selected is right or not;

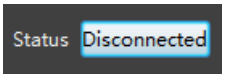
(3) Turn to "UART Setting" page to make sure the baud rate is 9600;

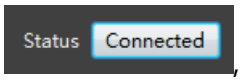
- **Network Control:**

User can also select Network 

to control the matrix via network.



Press "Search Device "button to search the matrix that connect in the LAN, if find, then select the matrix, and press 

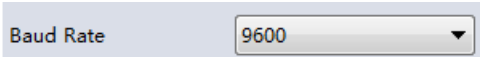
to connect, if connect success, will show 

, and will display the matrix routine information.

If connect failed, please check as follows:

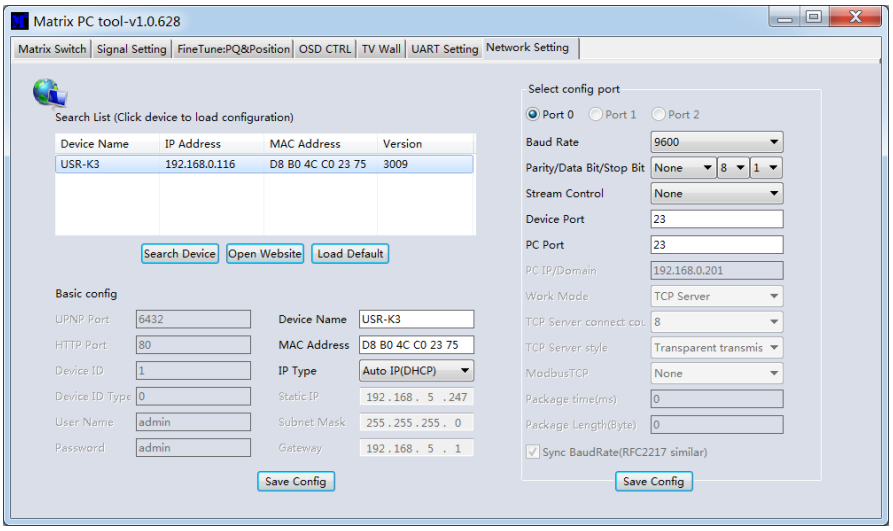
Case 1: Matrix and computer connected to the same router:

Turn to "Network Setting" page, press "Search Device" to search the matrix in the LAN, then select the matrix, and check the following setting:

(1) Baud rate must set to 9600 

;

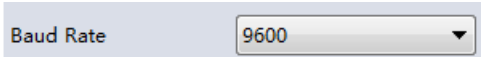
(2) The computer IP and matrix IP must be in the same segment and the same local area network; For example, the matrix' s IP is 192.168.1.xxx, then the computer IP must be 192.168.1.yyy; Otherwise need to change the matrix' s IP or the computer' s IP;



Case 2：Computer direct connect to the matrix via net cable：

Turn to “Network Setting” page, press “Search Device” to search the matrix in the LAN; then select the matrix, and check the following setting:

If can find matrix, then select the matrix, and check as follows:

(1) Baud rate must set to 9600 

;

(2) The computer IP and matrix IP must be in the same segment and the same local area network; For example, the matrix’ s IP is 192.168.1.xxx, then the computer IP must be 192.168.1.yyy; Otherwise need to change the matrix’ s IP or the computer’ s IP;

Note: If computer direct connect to the matrix via net cable, the matrix’ s IP must be set to static IP, otherwise can’ t search the matrix;

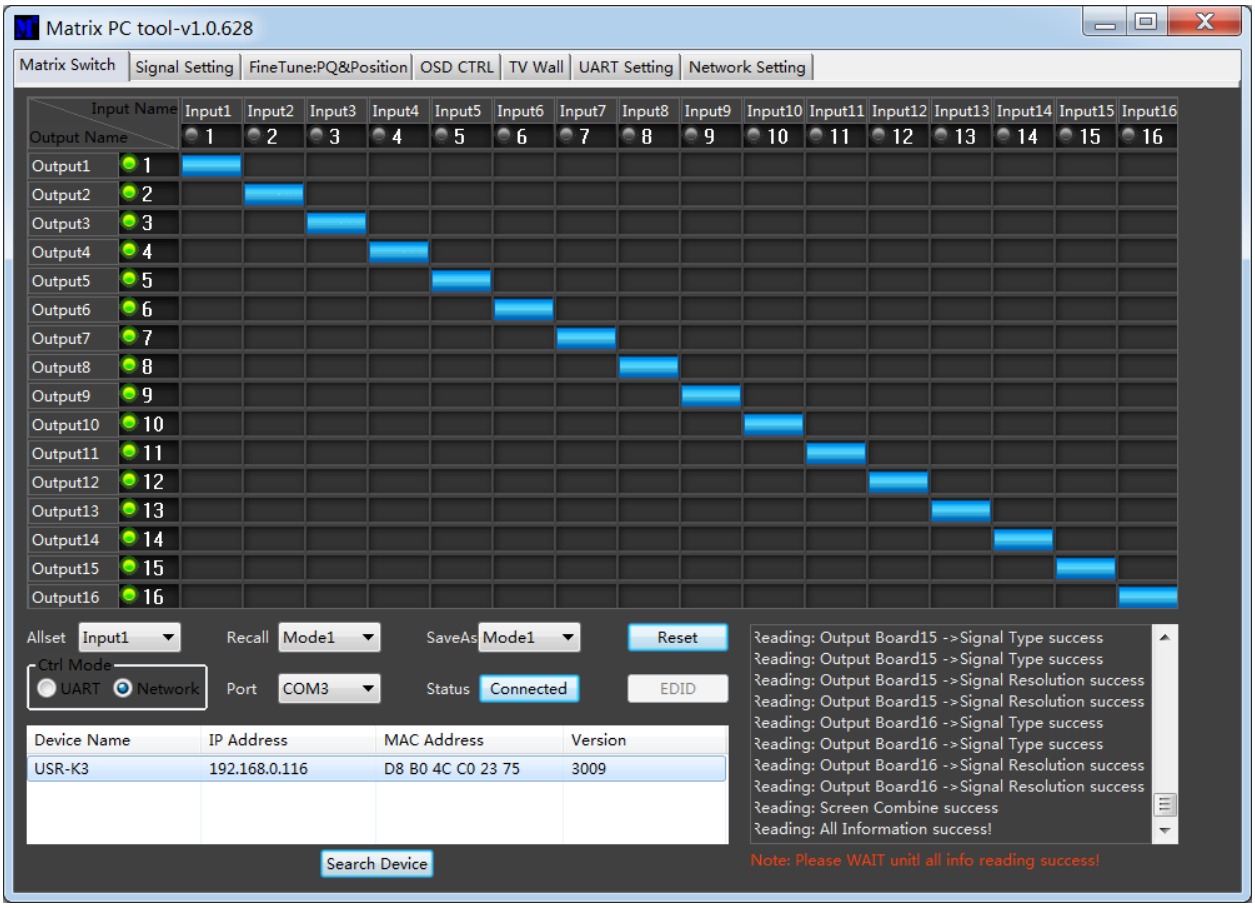
If can’ t find the matrix:

(3) Check the matrix RJ45 port LED is on or off, if the LED is off, change the net cable, make sure the net cable is good;

(4) If the net cable is good, it should because the matrix IP has been set to Auto IP. Then need to use a router, and connect the computer and the matrix to the same router, then set the matrix to a static IP, and the computer IP and matrix IP must be in the same segment and the same local area network;

Note: The default network setting of the matrix is static IP, and the IP address is 192.168.0.247, the sub mask is 255.255.255.0, the gateway is 192.168.0.1.

4.4. Matrix Switch:



When the PC-tool connect to the matrix via UART or Network, the PC-tool will display the matrix' s input and output information.

(1) User can click the mouse to switch the input; Can edit the input source name (for example, the user can edit the input 1 name to set-top box); Can also edit the output name to show which sink is connected (for example, the output 1 users can edit the name to TV).

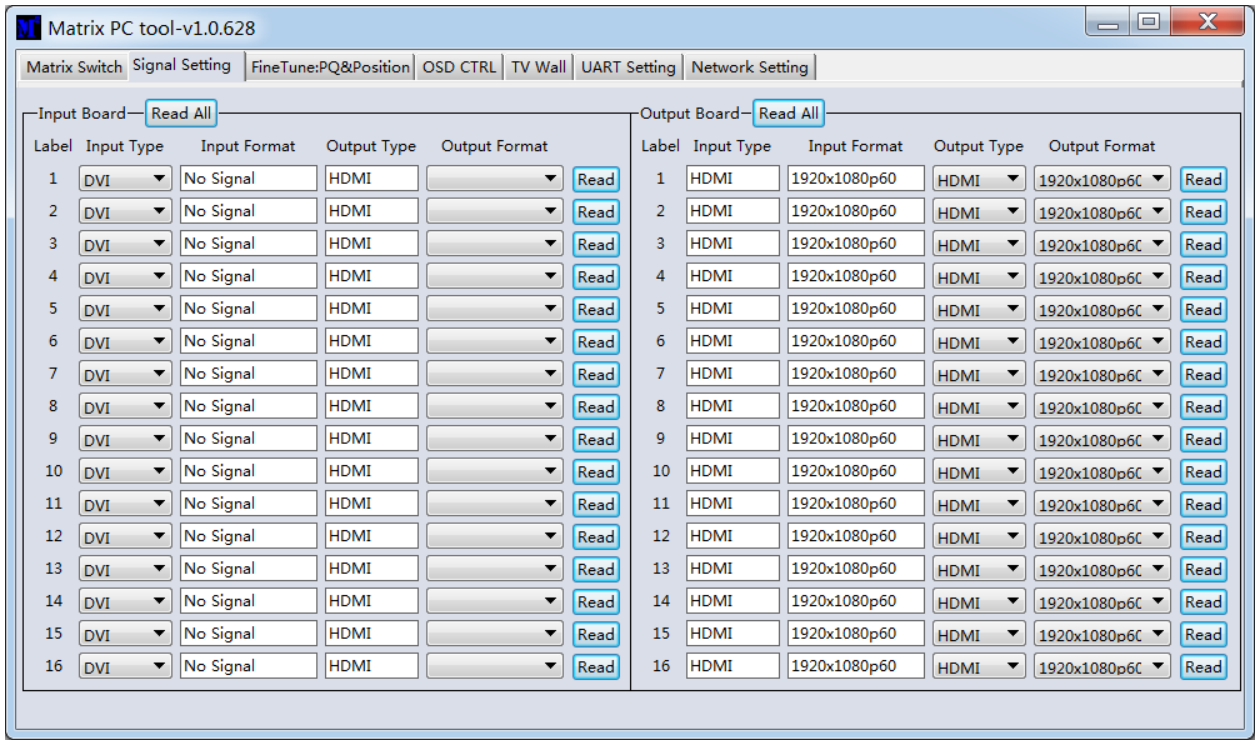
(2) Support scene save (the user can pull down the corresponding drop-down menu, to save the current input and output relationship to mode X, support 8 different modes);

(3) Support scene recalls(the user can drop down the corresponding drop-down menu, to set the mode X input and output relationship to the matrix);

(4) Support one input output to all outputs(the user can drop down the "Allset" drop-down menu, to set the input X output to all the output ports).

(5) Support system reset: click "Reset" button, after the user confirmed, then will reset the matrix to the factory default settings;

4.5. Signal Setting



(1) Read and set the type of all input ports (DVI/VGA/YPbPr/CVBS), corresponding to the actual input terminal type: HDMI (DVI) /VGA/YPbPr/CVBS ;
Note: Only the DVI-U input board has this setting, SDI/HDBaseT/ fiber and other input boards, this setting is invalid.

(2) Read the input signal resolution of all the input ports;

(3) Read and set all the input boards' output resolution; The default output resolution is 108p 60HZ;
Note: If no special requirement, please don' t change the input board' s output resolution, otherwise will affect the effect of seamless switching;

(4) Read the output board' s input resolution;

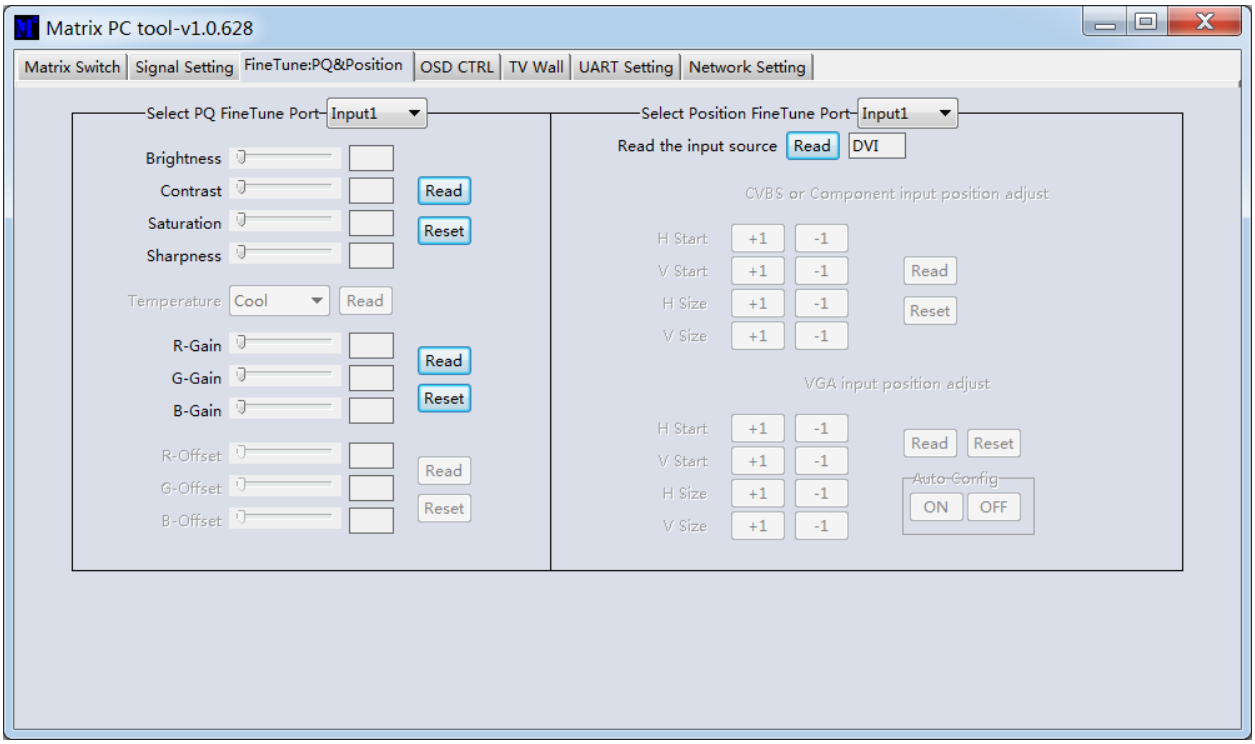
(5) Read and set the output' s output type; user must set the output terminal type according to the type of terminal that connected to the display device: HDMI/DVI

(6) Read and set the output board' s output resolution;

4.2. FineTune: PQ&Position

User can read and set the brightness/contrast/saturation/sharpness of the input board & output board, and also can read and set the video display position of the input board &

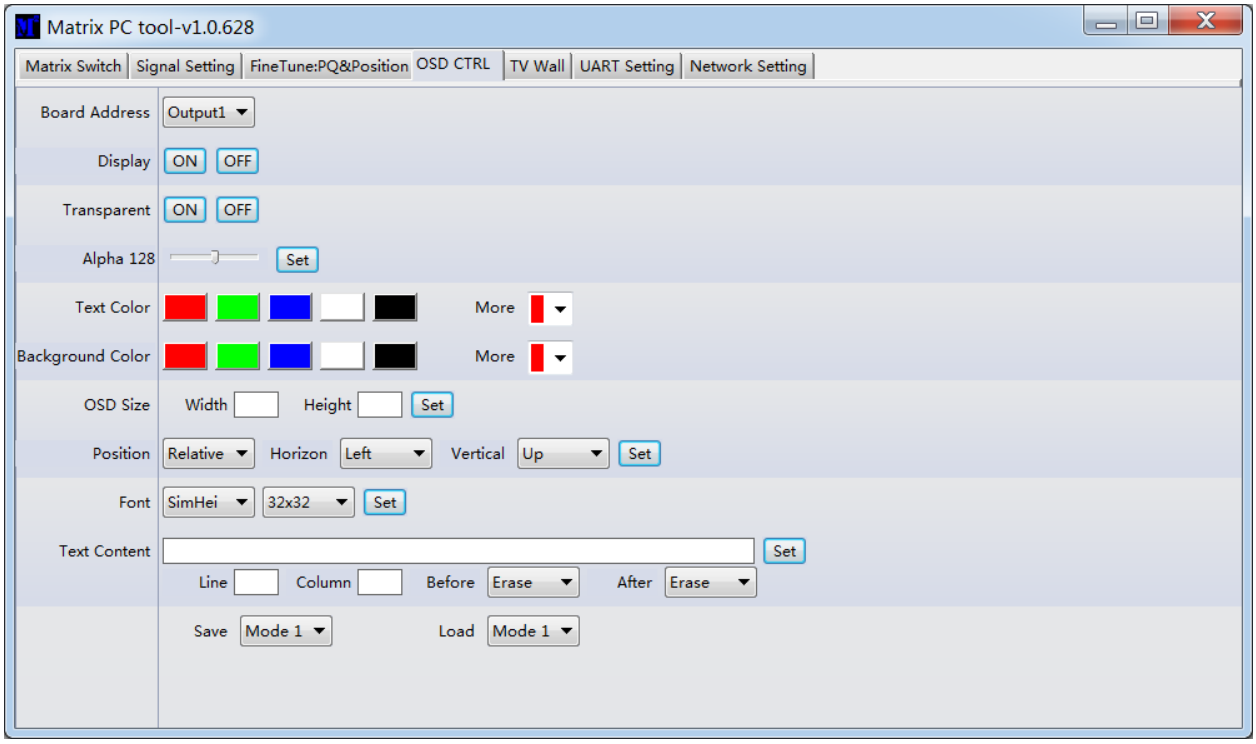
output board;



NOTE: Non special occasions, do not change the default settings; if there is a problem after the change, click Reset to return to the factory settings;

4.3. OSD CTRL:

This page is used to control the font overlay function. User can set the font overlay on/off, the background color, transparency, color, and other information;



Guide:

(1) Choose the output port which to display the character's by the drop down menu of the Board Address (currently only supports the font overlay on the output board);

(2) OSD Size: Set the area size for the character to display;

(3) Position: Set the font overlay position display on the screen;

(4) Font: Set the font type and the font size display on the screen;

(5) Text Content: Set the content that will display on the screen font overlay area;

(6) Line, Column: Set the line and column of the font display area that to display the font;

(7) Display: Font overlay on/off;

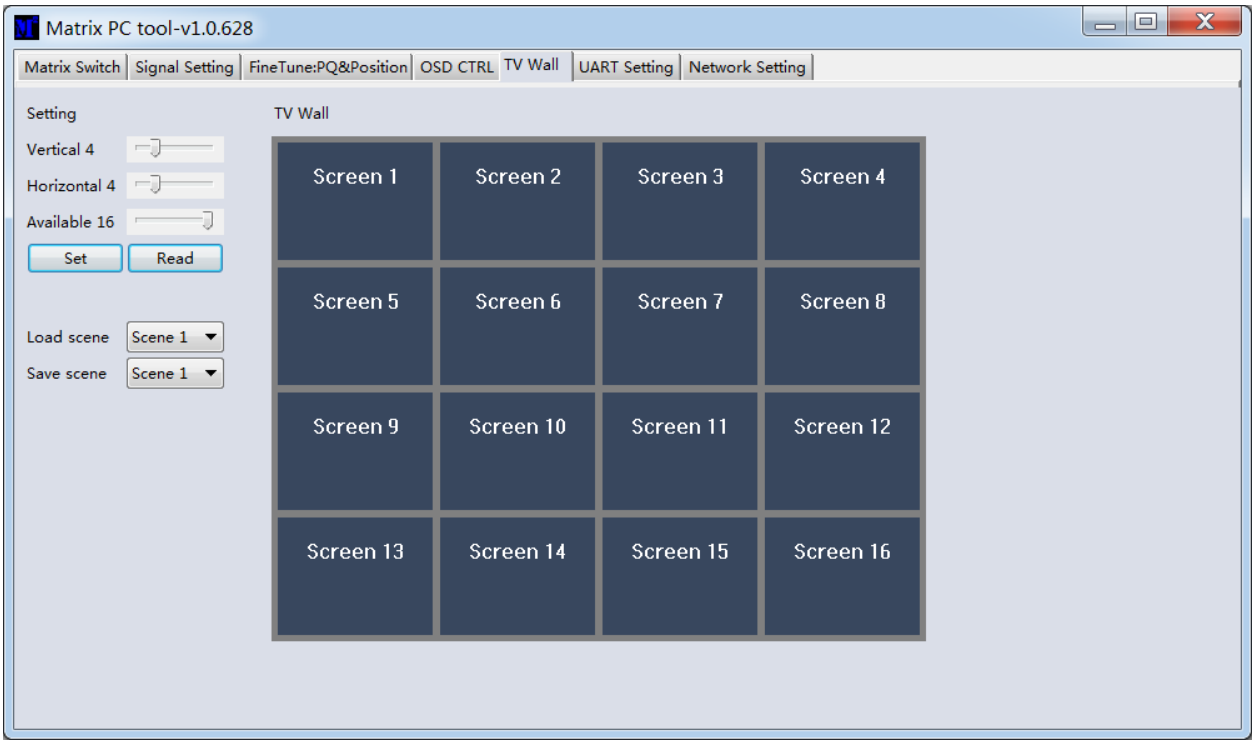
(8) Transparent: Background color of the font overlay on/off;

(9) Text color: font color;

(10) Background Color: Background color of the font;

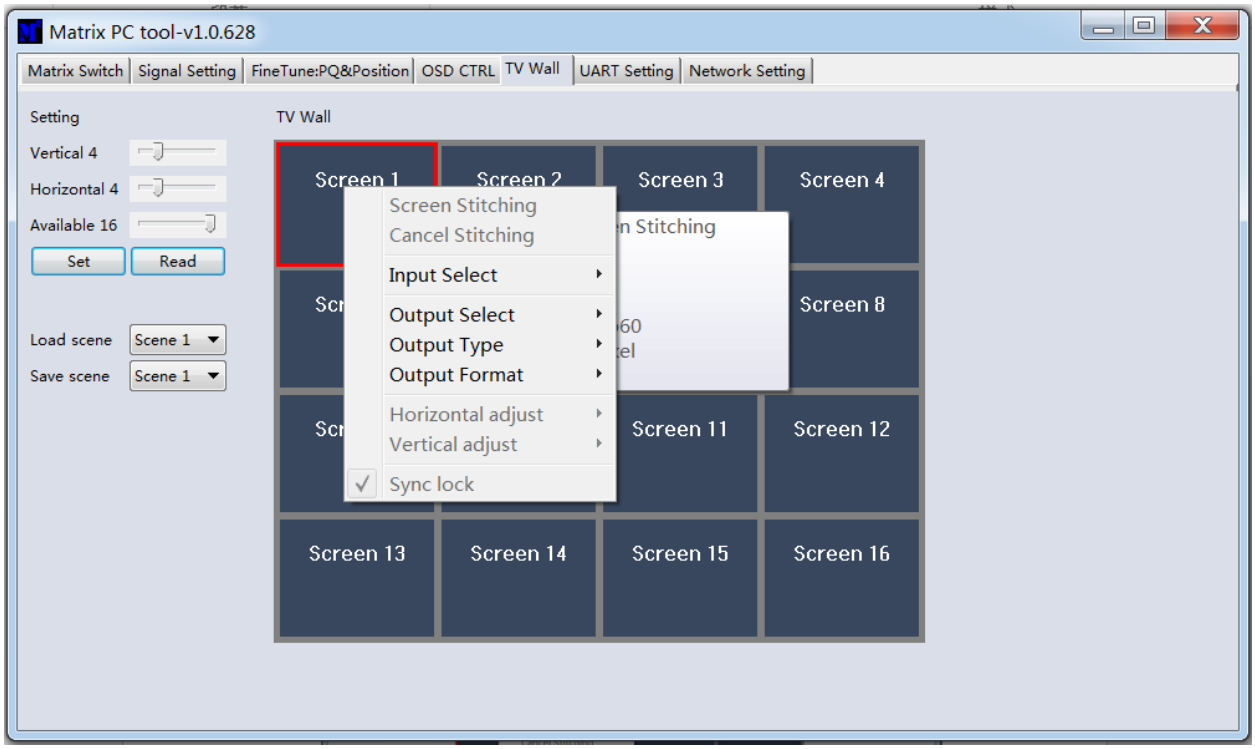
4.4. TV Wall:

Set the TV wall display quantity: how many in one line (x), and how many in one column (y); The total display quantity is x*y;

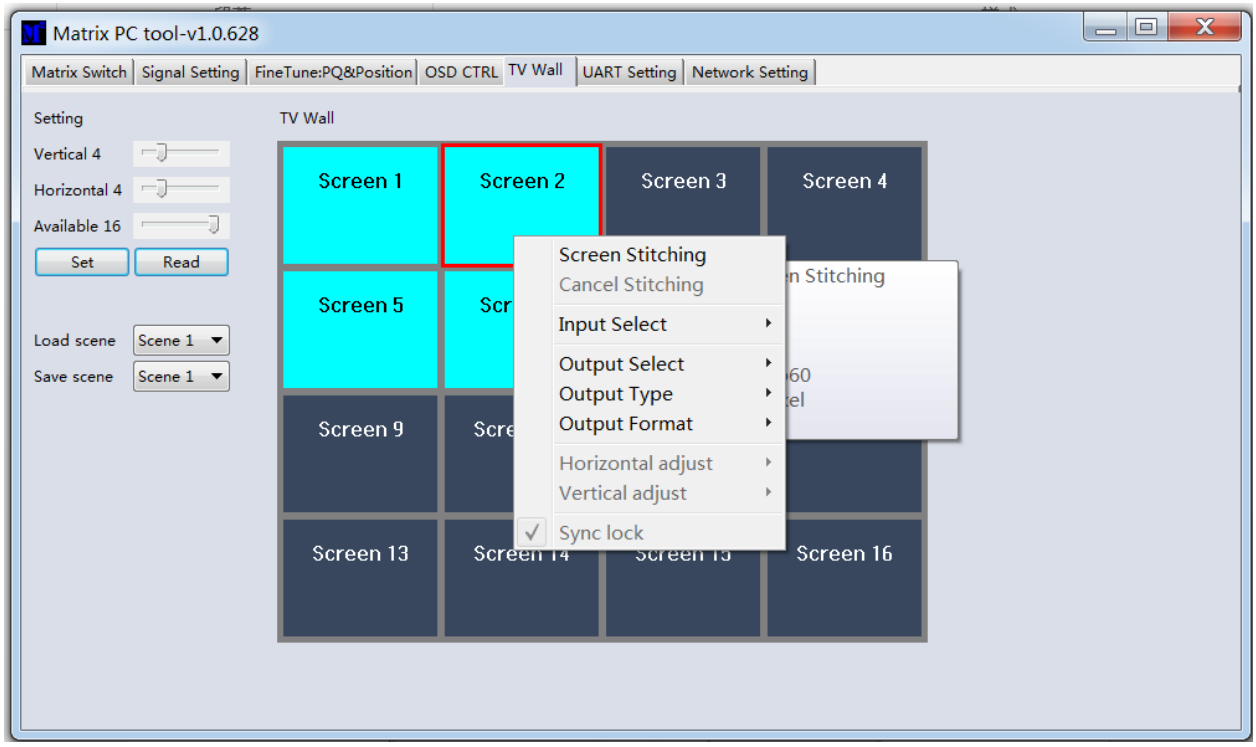


Select one display, right click, can see a menu as the following picture shows:

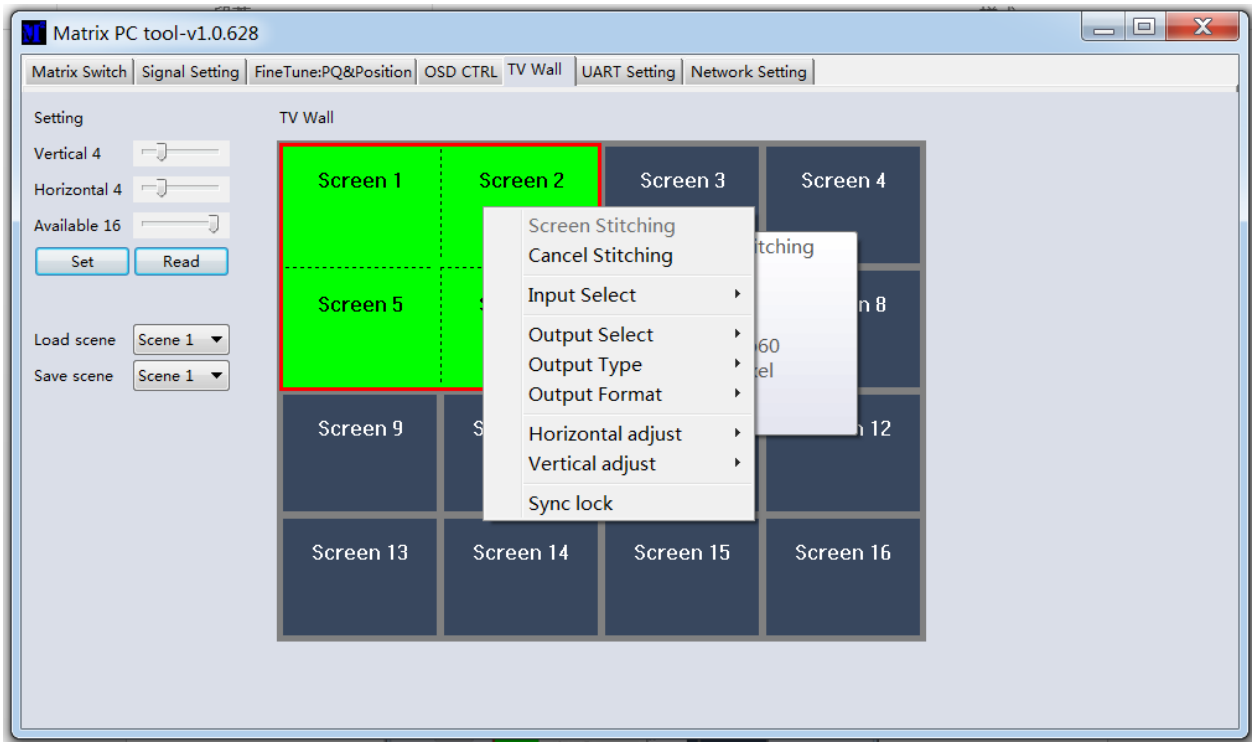
- Input Select: Select the input port, for the display to display (Input 1 ~ Input 16);
- Output Select: Set the output port that connect to the display, need according to the TV wall system setup status to set (Output 1 ~ Output 16); It means which output port connect to the display;
- Output Type: Set the terminal type of the output port, need to set according to the TV wall system setup status; (When in TV Wall mode, can only support HDMI)
- Output Format: Set the output port output resolution; (When in TV Wall mode, can only support 1080P 60HZ)



Click to select a screen, and then drag, select the screens to splice, right-click, and then click Screen Stitching to splicing;



Select the screen, which is splicing, right click, then will show menu as following picture shows:

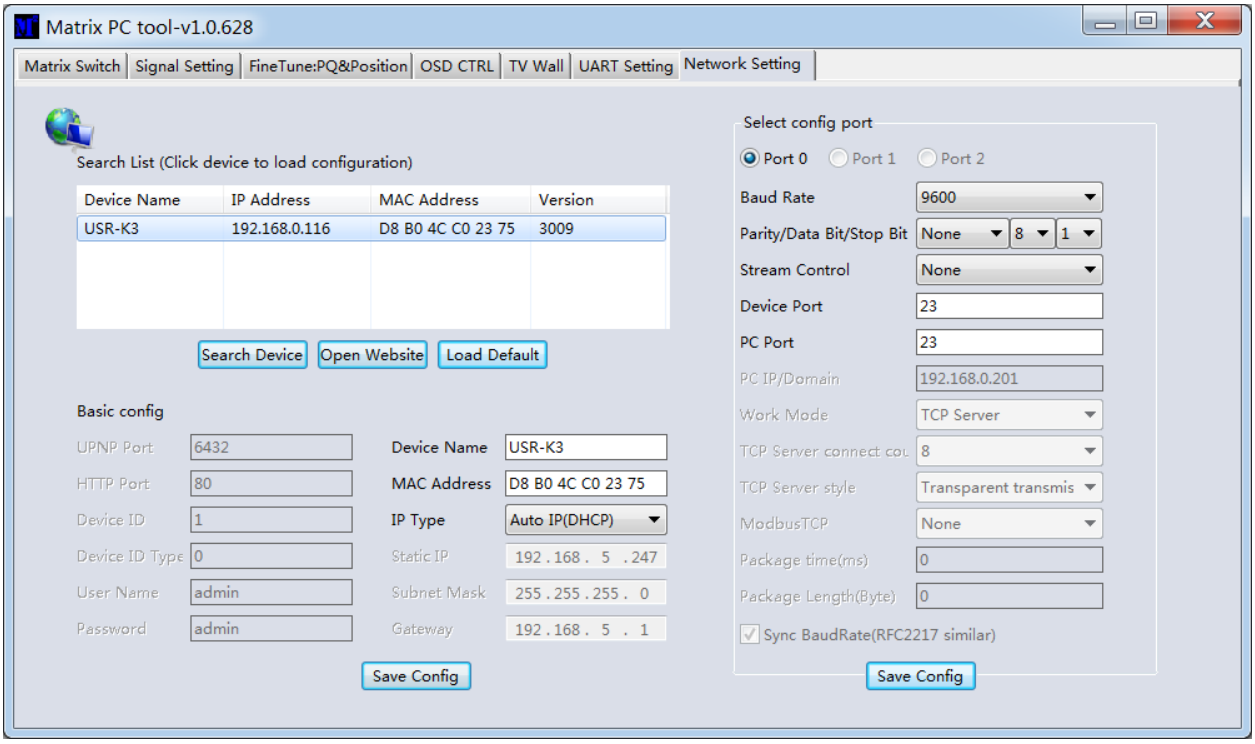


- Cancel Stitching: Cancel splicing;
- Input Select: Select the input port, for the display to display (Input 1 ~ Input 8);
- Output Select: Set the output port that connect to the display, need according to the TV wall system setup status to set (Output 1 ~ Output 8); It means which output port connect to the display;
- Output Type: Set the terminal type of the output port, need to set according to the TV wall system setup status; (When in splicing mode, can only support HDMI)
- Output Format: Set the output port output resolution; (When in splicing mode, can only support 1080P 60HZ)
- Horizontal adjust: Set the TV wall screen horizontal frame width for each screen;
- Vertical adjust: Set the TV wall screen vertical frame width for each screen;
- Sync lock: In order that all the screens that in splicing are sync lock all the time, must set the sync lock;

5.VMHD1616 Control via Web:

(1) Do not know the matrix IP address: Click on the Network Settings page, and then click Search Device, and then select the device that found, click Open Website to open the web control web site, or can input the IP on the web browser , then enter the username: admin Password: admin, then can control the matrix switch function use the website;
NOTE: The computer IP and matrix IP must be in the same segment and the same local area network; For example, the matrix' s IP is 192.168.1.xxx, then the computer IP must be 192.168.1.yyy; Otherwise need to change the matrix' s IP or the computer' s IP;

Note: the browser must support HTML5 feature, which must be IE10 and above;



(2) Know the matrix IP address: Input the IP on the web browser, then enter the username: admin Password: admin, then can control the matrix switch function use the website;
Note: the browser must support HTML5 feature, which must be IE10 and above;

6. VMHD1616 Using Cautions

(1) During installation, must ensure the power supply ground is good, and ensure that the power supply for the device is 50/60Hz, AC110-240V;

(2) Do not place the matrix in the place where is too cold or overheated. In the wet environment or a long time not use, better to turn it off;

(3) Maintain a good ventilation of the working environment, to facilitate the timely discharge of heat;

(4) Make sure the signal cable, communication cable connect well to the matrix, then power on; AC power can’ t exceed 220V;

(5) Change the input source without turn off matrix, may cause video not display correctly on the display. If this occur, please turn off the matrix, then power on, or re-plug the input board;

(6) HDMI/DVI cable should not exceed 10 meters, certified cable is recommended;

(7) If control via RS232 failed, please check whether the com port selected is right, and the RS232 cable is straight cable, not cross cable, the baud rate must set to 9600;

(8) If after switch , there is no video output, , please check as follows:

- Check whether the switch command is executive or not, can use the PC-tool to see the input and out routing information;
- Check the source is work normal or not; Can direct connect the source’ s output to a display to see whether the source is ok or not;
- If the source is ok, then check the input board is ok or not, please refer to the PC-Tool’ s Signal Setting page to check whether the output port’ s input has signal or not, if there is no signal input, then the input board is broken, otherwise the input board is ok;
- If the input board is ok, check whether the output board is ok or not;
- If the above steps are still not sure why, please replace the input or output boards, Or refer to the professional maintenance person for help;