BZB2GEAR ®

Solutions to Amplify Your World ™

BG-4K-VP44PRO

4K60Hz HDMI 4x4 Seamless Matrix and Signal Extender(70m)

with Video Wall and Multiview Modes

User Manual

Table of Contents

Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.

- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.

- Do not expose the product to rain or moisture.

- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.

- Do not use the product beyond the specified temperature, humidity, or power supply specifications.

- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.

- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-4K-VP44PRO is a 4x4 HDMI 2.0 Seamless Matrix that offers a range of impressive features. It has 4 HDMI inputs and 4 RJ45 outputs with 1 HDMI loop output, supporting 4K@60HZ 4:4:4 8bit with HDCP 2.2. In Seamless Matrix Mode, it provides smooth switching without delay or signal loss. It also offers Video Wall Mode with up to 7 different modes built-in and supports cascading. The Multiviewer Mode can display 4 videos simultaneously on a single screen with various built-in layouts.

Additionally, the BG-4K-VP44PRO is capable of audio matrixing for analog audio embedding, extraction, and independent audio switching capabilities. The device supports EDID management and LPCM 2.0 audio format. With PoC (Power over Cable), the receivers are powered by the base unit simplifying installations. Control options include panel buttons, remote control, RS232, and TCP/IP control.

Feature

- Seamless matrix with 4 HDMI inputs, 4 RJ45 outputs for 70m signal extension, and 1 HDMI loopout

- 4K@60HZ 4:4:4 8bit, HDCP 2.2

- Seamless Matrix Mode: 4 in, 4 out with no switching delay or signal loss

- Video Wall Mode: Up to 7 different modes built-in and supports cascading

- Multiviewer Mode: Display 4 videos on the same screen with different configurations

- Audio Matrix: Analog audio embedding, extraction, and the audio can be independently switched.

- Advanced EDID management

- LPCM 2.0 audio format

- PoC (Power over Cable): receivers powered by base unit via ethernet cable.

- Control via Panel button, Remote, RS232, TCP/IP Control

Packing List

- 1x BG-4K-VP44PRO
- 1x 12V/4A DC power adapter
- 1x Remote control
- 1x 3 Pin Phoenix Terminal Plug
- 4x BG-4K-VP44PRO-R
- 5x IR Transmitter Cables
- 5x IR Receiver Cables
- 1x CD and User Manual

Specifications

| Technical Specifications	
Operating Temperature Range	-5 to +40°C(23 to +104 °F)
Storage Temperature Range	-10 to +60°C(-14 to +140 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Video Input Connectors	4x HDMI Type A, 19-pin, female
Video Output Connectors	4x RJ45 female and 4x HDMI Type A, 19-pin, female
Bandwidth	18 Gbit/s
Supported Video Format	4K@60Hz,YUV 4:4:4 8bit 4k@30Hz/1080P/1080i/720P
Supported Audio Formats	LPCM 2.0
HDCP Compliant	HDCP 2.2 and HDCP 1.4
Input ports	4x HDMI Ports
Output ports	4x RJ45 Ports and 4x HDMI Ports
Power Consumption	41 watts (Max.)
Dimensions	Matrix: L262 x W163 x H36 mm
Mass (Main Unit)	Matrix: 2710g

Operation Controls and Functions

Front Panel

1. LCD screen, IR receiving port, and indicator light
2. Output button OUT 1~4 & Input button IN 1~4
3. MENU button: PRESET; MANU; UP; DOWN; LOCK; ENTER

Rear Panel
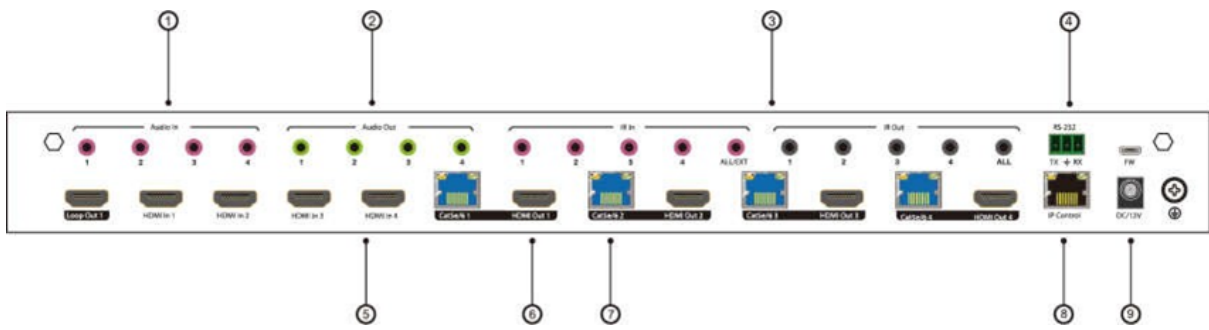
1. 3.5mm Audio In
2. 3.5mm Audio Out
3. IR In & Out
4. RS232 port
5. HDMI IN x4 with 1x HDMI Loop out
6. HDMI OUT x4
7. RJ45 x4
8. Ethernet port
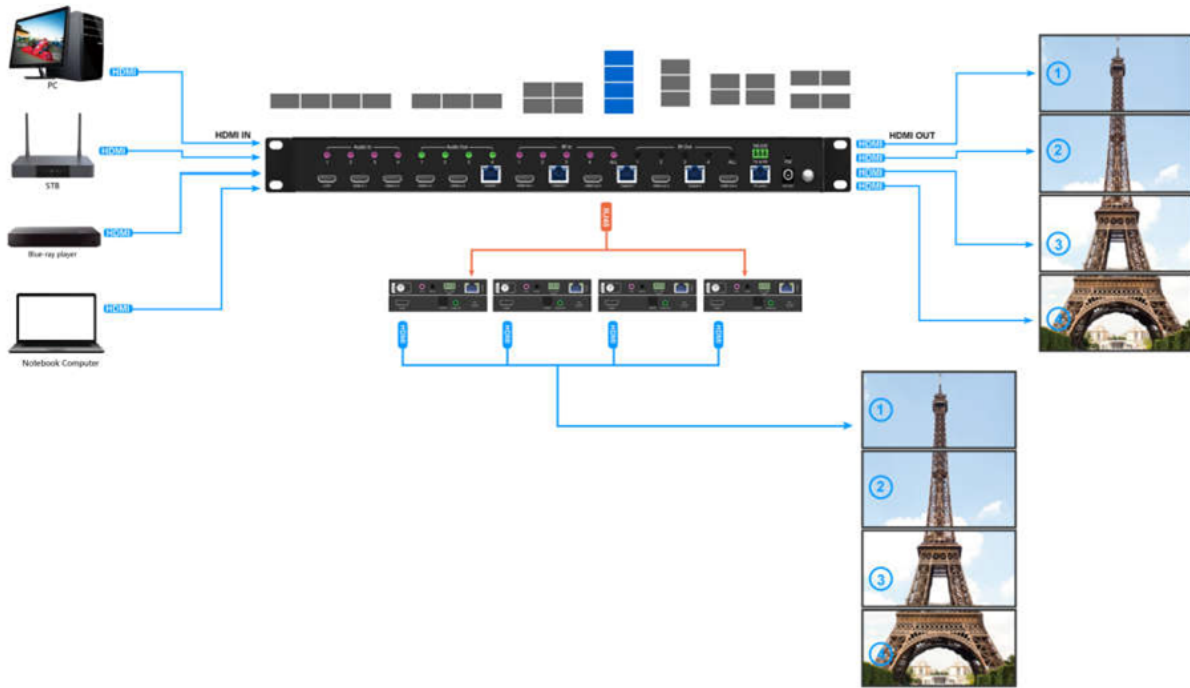9. Power input 12V/4A and FW updating Port
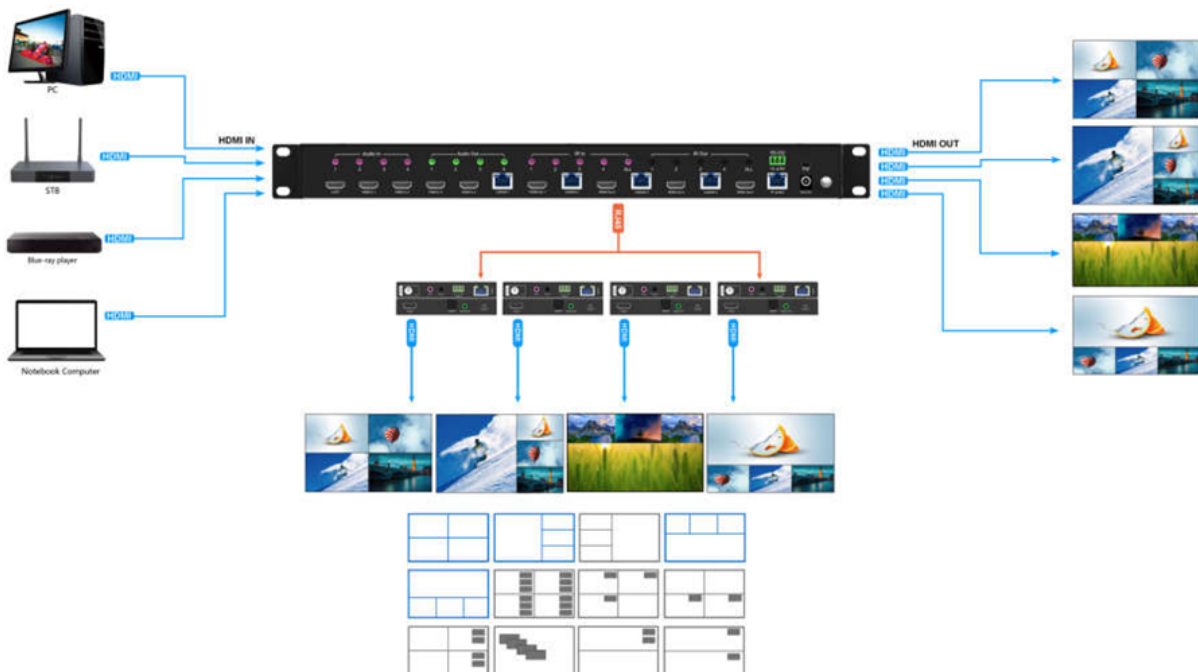
Wiring Diagrams

Seamless Matrix Mode

Video Wall Mode

Multiviewer mode

Input / Output Channel Key Operation

Channel	Button Methodology
OUT1-4	1. Press the OUTPUT# button for the display you wish to change and the # will be highlighted on the display screen. Multiple outputs can be selected and highlighted at once. 2. Long press any OUTPUT button to highlight/select all outputs at once. 3. Press the INPUT # button you would like to display and the highlighted/selected output(s) will change to the selected input #. 4. Press the OUTPUT # button again to cancel the selection of a highlighted output on the display screen.
IN1-4	Press and hold an INPUT # button to change all inputs to the selected input.
MENU	Press the MENU button to enter the on screen display (OSD) menu or back to the previous option.
ENTER	Press the ENTER button to confirm a selected option or advance to the next menu screen.
UP	Press the UP button to navigate the OSD Menu.
DOWN	Press the DOWN button to navigate the OSD Menu.
PRESET	1. Press the PRESET button to enter the preset call menu. 2. Use the UP and DOWN buttons to highlight one of the 26 preset modes 3. Press the ENTER key to enable the highlighted preset mode.
LOCK	Long press the LOCK button to lock the touch panel buttons. Long press the LOCK button again to unlock.

Panel Control

Video

There are 4 switching channels which can be configured to form a matrix of 1×4 ~ 4×4 and can switch any input signal to any of the outputs.

Operation: "output channel" + "input channel"

Output	1	2	3	4
Input	2	2	2	2

Examples:

1. Switch output 1 to input 4
   a. Press output button "1" and then press input "4" button to switch
2. Switch Outputs 1, 2, and 3 switch to input 2.
   a. Press output buttons "1", "2", and "3" and then press input button "2" to complete the switch.
3. Switch all outputs to input 4 source
   a. Long press output button "4" and then short press input "4" to switch.

Main Menu

The main menu is divided into 5 sections, which are Output, Input, Preset, Config, and Info. Each section has multiple sub-menus that need to be set up for the best performance.

```
Main>

1 / 5              1 / 5
Output       >     Output 1     >
Input        >     Output 2     >
Preset       >     Output 3     >
Config       >     Output 4     >
Info         >     All          >
```

Output

There are 5 sub-menus in the Output interface: output 1~4 and All, which are used for individual or all output settings. Each channel contains 3 function items, which are video, audio, and power.

```
M a i n >   O u t p u t >

1 / 5                    1 / 3
O u t p u t 1      >   V i d e o          >
O u t p u t 2      >   A u d i o          >
O u t p u t 3      >   P o w e r          >
O u t p u t 4      >
A l l              >
```

Choose a desired output before setting video or audio parameters.
There are 9 options in video: Source, Onoff, Pattern, Format, Genlock, Mirror, Coord, PIP, and Image. There are 4 options in Audio: HDMI onoff, HDMI SRC, DEC onoff, and DEC SRC.

```
M a i n >   O u t p u t >   O u t p u t 1 >

1 / 3                    1 / 1 0
V i d e o          >   S o u r c e        >
A u d i o          >   O n o f f          >
P o w e r          >   P a t t e r n      >
                       F o r m a t        >
                       G e n l o c k      >
```

1）   Source

Any output can be switched to any input or all outputs can be switched to the same input; Default setting is PTP (Point to Point)

```
M a i n >   O u t p u t >   O u t p u t 1 >   V i d e o >

1 / 9                    4 / 4
S o u r c e        >   I n p u t 1
O n o f f          >   I n p u t 2
P a t t e r n      >   I n p u t 3
F o r m a t        >   I n p u t 4        @
G e n l o c k      >
```

2) **Onoff**

Turn the video stream on or off for one or all of the outputs. The video streams are turned on by default.

```
Main >  Output >  All >  Video >

2 / 9                    2 / 2
Source        >  Off
Onoff         >  On                    @
Pattern       >
Format        >
Genlock       >
```

3) **Pattern**

Built-in images can be shown on a display(s) by using the Pattern option which can be used for signal testing or video alignment.
For example: Using the Cross or Cross1 images in 4x4 Video Wall mode to test whether each display is formatted and mounted correctly.

```
Main >  Output >  All >  Video >

3 / 9                    1 / 16
Source        >  Disable      @
Onoff         >  White
Pattern       >  Cross
Format        >  Cross1
Genlock       >  Color
```

4） Format

The Format function can set and force the output resolution format but it does not provide an upscale image quality.

Example:
The input is 1080P@60Hz and the output is set to 4K60Hz. Although the TV is displayed in 4K@60Hz the image will still be in 1080P@60Hz.
**NOTE:** Selecting the input mode will enable the following input resolution but switching with the matrix will not be seamless unless the resolution from the source is in the same format and without HDR. There will be a system check time for 15 seconds. The setting will return to the original resolution if the display does not support the selected resolution.

```
Main>  Output>  All>  Video>

4 / 9              1 / 4
Source      >   Resolut..>
Onoff       >   Color        >
Pattern     >   Deep         >
Format      >   Rang         >
Genlock     >
```

```
...>>  All>  Video>  Format>

1 / 4              2 / 17
Resolutio>   Default 1
Color        >   Default 2  @
Deep         >   Default 3
Rang         >   Default 4
                    User 1
```

```
...>>  Format>  Resolution>

2 / 17
Default 1      Default 2 : 4K30
Default 2  @
Default 3
Default 4
User 1
```
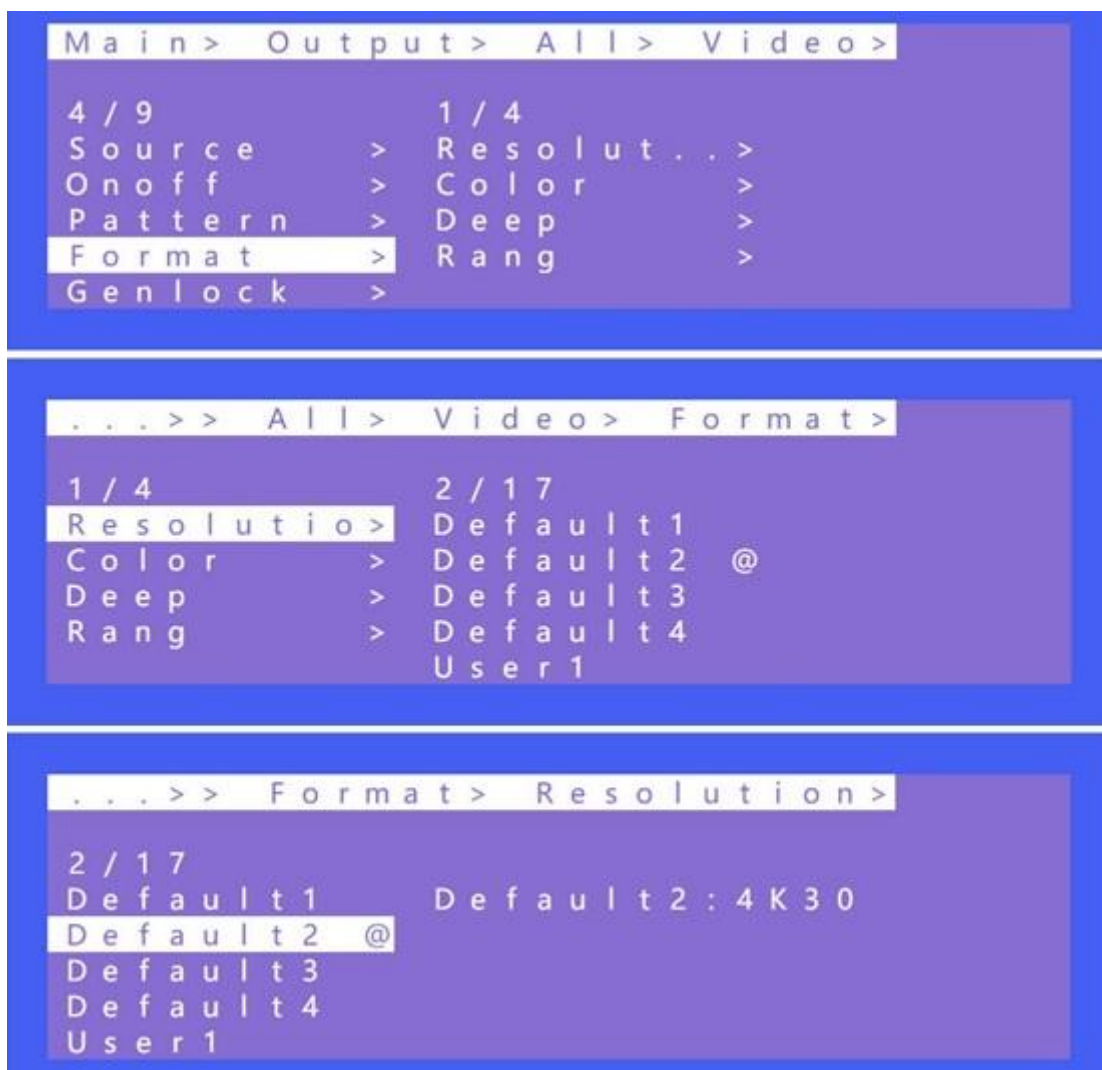
5） **Genlock**

Genlock is a common technique where the video output of one source is used to synchronize other picture sources together. Default is to Off. Output 1 cannot be selected as it is the reference. Only Output 2, Output 3, and Output 4 can be enabled. Switching the output resolution will affect other output images. (The image may be black for a while and the resolution will not be able to be changed.)
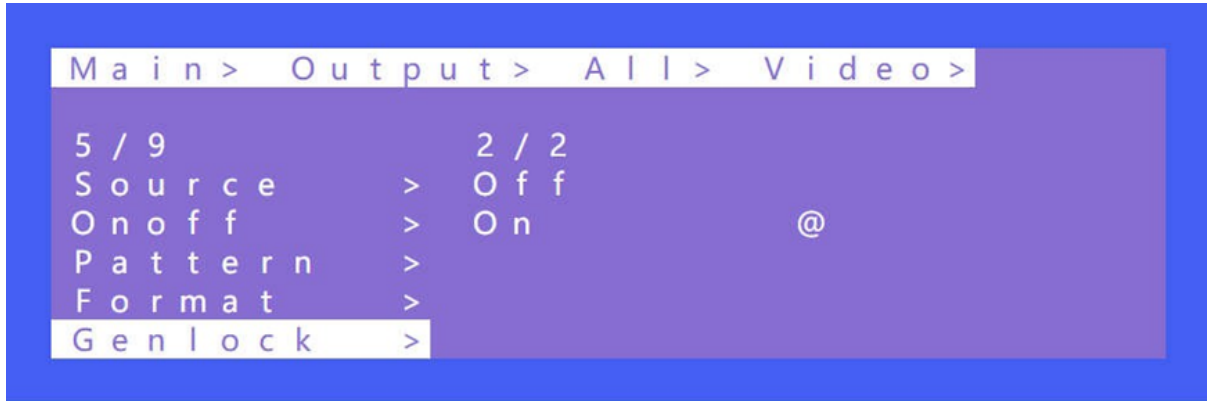
Operation:
1. Select "Output" in the main menu and press "ENTER"
2. Press "UP" or "DOWN" to select " Output 1~4, all"
3. Click "ENTER" to enter the next sub-menu
4. Press "UP" or "DOWN" to select "Video"
5. Press "UP" or "DOWN" to select "Genlock"
6. Click "ENTER" to enter the next sub-menu
7. Press "UP" or "DOWN" to select " Off" or "On" to complete the operation.

6）   Mirror

Mirror can flip an image on the horizontal or vertical axis. X is used to mirror horizontally and Y is used to mirror on the vertical axis. By default Mirror is set to off.
There are 3 options including Crop, Zoom, and Windows in the sub-menu, allowing users to crop and zoom images respectively.

Windows represents the current window image

7）   **Coord**

Coord is used to fine tune the parameters of an image in multiview and video wall modes. There are 3 types including Crop, Zoom, and Gap.

Crop trims an image, Zoom will magnify the image, and Gap will compensate for the bezel on the display.

There are a total of 10 coordinate parameters which can be changed: CROPX0, CROPY0, CROPX1, CROPY1, ZOOMX0, ZOOMY0, ZOOMX1, ZOOMY1, GapX, and GapY .

Adjusting these parameters will have effects in multiview and video wall modes.
The default starting point of Crop : CROPX0 = 0, CROPY0 = 0.
The default end point of Crop: CROPX1 = 6000, CROPY1 =6000.
The default start point of Zoom: ZoomX0 = 0, ZoomY0 = 0
The default end point of Zoom: ZoomX1 = 6000, ZoomY1 = 6000
The default start point of GapX=0, GapY=0

```
Main>   Output>   All>   Video>

7 / 9              1 / 1 0
P a t t e r n      >   C R O P   X 0    >
F o r m a t        >   C R O P   Y 0    >
G e n l o c k      >   C R O P   X 1    >
M i r r o r        >   C R O P   Y 1    >
C o o r d          >   Z O O M   X 0    >
```

```
. . . > >   A l l >   V i d e o >   C o o r d >

1 / 1 0              1 / 6 0 0 1
C R O P   X 0    >   0                @
C R O P   Y 0    >   1
C R O P   X 1    >   2
C R O P   Y 1    >   3
Z O O M   X 0    >   4
```

```
. . . > >   A l l >   V i d e o >   C o o r d >

9 / 1 0              1 / 1 0 0 1
Z O O M   Y 0    >   0                @
Z O O M   X 1    >   1
Z O O M   Y 1    >   2
G a p   X        >   3
G a p   Y        >   4
```
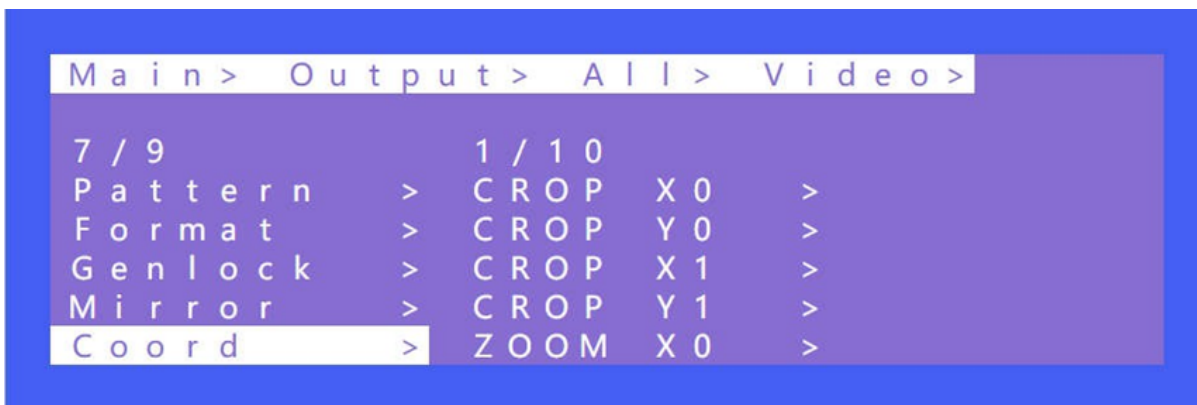
8） **PIP**

PIP is mainly used for the layer priority. By default, each output has 4 layers. It can change the sequence of the layers in multiview mode. Each layer can choose an output. You can turn this function on or off in Status.

Alpha will adjust the transparency between the layers.
NOTE: One layer can select only one output and it cannot select it repeatedly, otherwise it will not take effect.

```
Main>  Output>  All>  Video>

8 / 9                    1 / 9
Format        >    Status      >
Genlock       >    Layer1      >
Mirror        >    Layer2      >
Coord         >    Layer3      >
PIP           >    Layer4      >
```

```
Main>  Output>  All>  Video>  PIP>

1 / 9                    1 / 2
Status        >    Disable     @
Layer1        >    Enable
Layer2        >
Layer3        >
Layer4        >
```

```
Main>  Output>  All>  Video>  PIP>

2 / 9                    1 / 4
Status        >    Output1     @
Layer1        >    Output2
Layer2        >    Output3
Layer3        >    Output4
Layer4        >
```

```
Main>  Output>  All>  Video>  PIP>

6 / 9                    1 / 21
Layer4        >    0               @
Alpha1        >    1
Alpha2        >    2
Alpha3        >    3
Alpha4        >    4
```

9) Image

Image is used to set the parameters of the output image. There are 4 parameters: Brightness, Contrast, Saturation, and Hue. Parameters range from 0 to100 and they are set to 50 by default.

```
Main>  Output>  All>  Video>

9 / 9              1 / 4
Genlock     >    Brightn..>
Mirror      >    Contrast   >
Coord       >    Saturat..>
PIP         >    Hue        >
Image       >
```

Audio

There are 4 options in Audio: HDMI Onoff, HDMI SRC, DEC Onoff, DECSRC. This unit can switch audio independently, turn off HDMI audio output, extract audio as well as switch extracted audio to another source.

```
Main>  Output>  Output1>

2 / 3              1 / 4
Video       >    HDMI  On..>
Audio       >    HDMI  SRC  >
Power       >    DEC  Onoff >
                 DEC  SRC   >
```
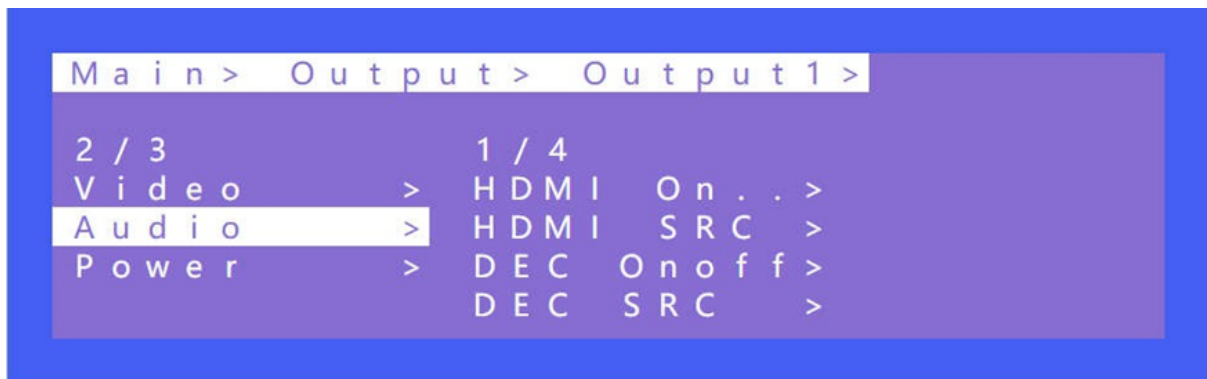
1） **HDMI Onoff**

HDMI Onoff can turn HDMI audio on or off. Video will be displayed on TV without audio when turning off the audio.

```
M a i n >   O u t p u t >   O u t p u t 1 >   A u d i o >

1 / 4                        2 / 2
H D M I     O n o f >     O f f
H D M I     S R C     >   O n                  @
D E C   O n o f f >
D E C   S R C     >
```

2） **HDMI SRC**

HDMI SRC enables switching to different input signal sources. It supports switching to analog audio in 1~4 and HDMI input 1~4.
Auto HDMI (Default) the audio is from the corresponding input.
Auto ENC audio is from the corresponding audio input. Audio follows the matrix input's and does not switch to other audio sources.

```
M a i n >   O u t p u t >   O u t p u t 1 >   A u d i o >

2 / 4                        9 / 1 0
H D M I     O n . . >     E N C 1
H D M I     S R C     >   E N C 2
D E C   O n o f f >       E N C 3
D E C   S R C     >       E N C 4
                          A u t o   H D M I @
```

3） DEC onoff

DEC Onoff can turn on or off the audio for the entire device. Click "On" to turn on the audio, click "Off" to turn off the audio. It is ON by default.

4） DEC SRC

DEC SRC allows audio to be extracted and embedded to a different input source. Audio can be switched to HDMI inputs 1~4. Auto HDMI follows the corresponding input. The default is Auto HDMI.

Power

Power will turn on or off the HDMI output of 5V. This is different from "Onoff" as there is a blue screen displayed on a TV while selecting "off" in "Onoff". Image will completely turn off after selecting "Off" in "Power". It is on by default.

Main menu including 5 Modes: Output, Input, Preset, Config, Info

```
Main>   Output>   Output1>

3 / 3              2 / 2
Video        >    Off
Audio        >    On            @
Power        >
```
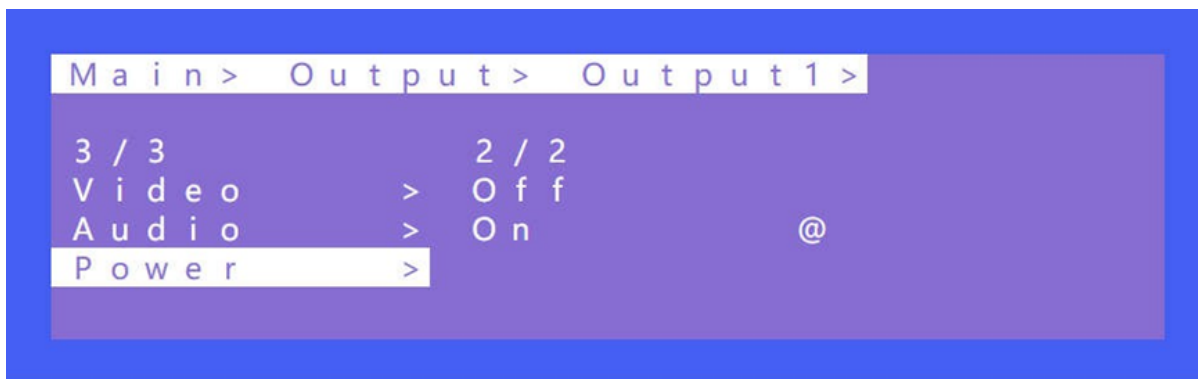
Input

There are three options in the Input interface which are Video, Audio, and EDID.
Video is used to provide the switch channel and built-in Pattern switch. Audio is used to set the delay to sync embedded/extracted audio with a video stream. EDID supports built-in, copy, user, and temp.

```
Main>

2 / 5              1 / 5
Output       >    Input 1        >
Input        >    Input 2        >
Preset       >    Input 3        >
Config       >    Input 4        >
Info         >    All            >
```

```
Main>   Input>

1 / 5              1 / 3
Input 1      >    Video          >
Input 2      >    Audio          >
Input 3      >    EDID           >
Input 4      >
All          >
```
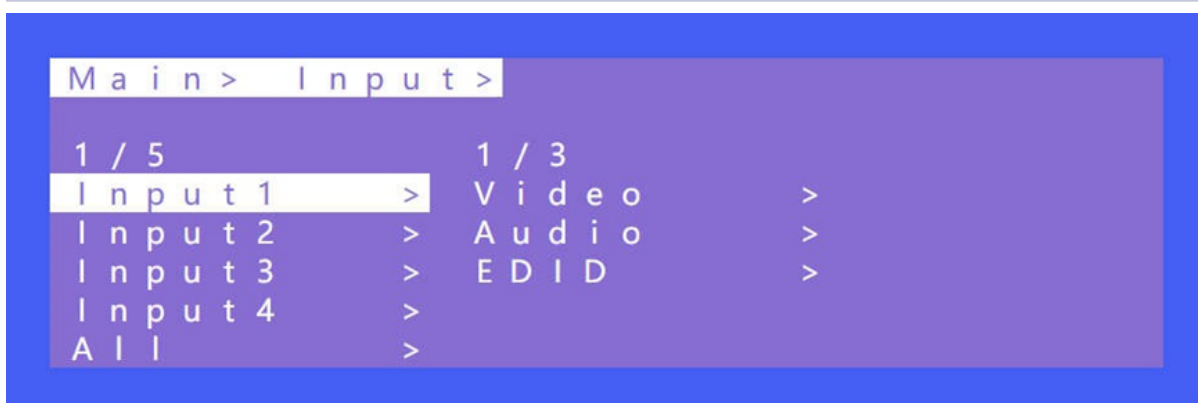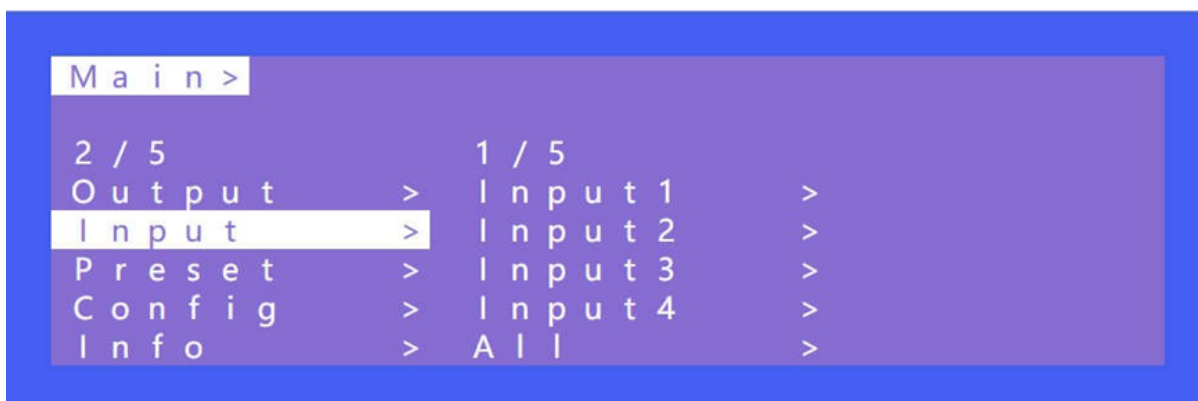
1)   Video

Video Onoff can turn the input channel on or off. All of the outputs corresponding to the input will have no image or audio when this input is set to "Off". Pattern provides a built-in pattern which can be selected to replace the input source image.

```
Main >    Input >    Input 1 >

1 / 3              1 / 2
Video        >    Onoff        >
Audio        >    Pattern      >
EDID         >
```

2)   Audio

Audio delay setting range 0~50(ms) and auto, the default is auto. This setting is used to help embedded or extracted audio sync better with the video stream.

```
Main >    Input >    Input 1 >

2 / 3              1 / 1
Video        >    Delay        >
Audio        >
EDID         >
```

3)   EDID

There are 4 EDID options including built-in EDID, User EDID, Copy HDMI EDID, and temp. Each input EDID can be set individually. The default setting is default1.
After copying the TV EDID, the audio parameter is automatically changed to LPCM 2.0.

Default1	4K60 4:4:4-LPCM: 2.0-192Khz	Default2	4K60 4:2:0-LPCM: 2.0-192Khz
Default3	4K30 4:4:4-LPCM: 2.0-192Khz	Default4	1080P120 4:4:4-LPCM: 2.0-192Khz
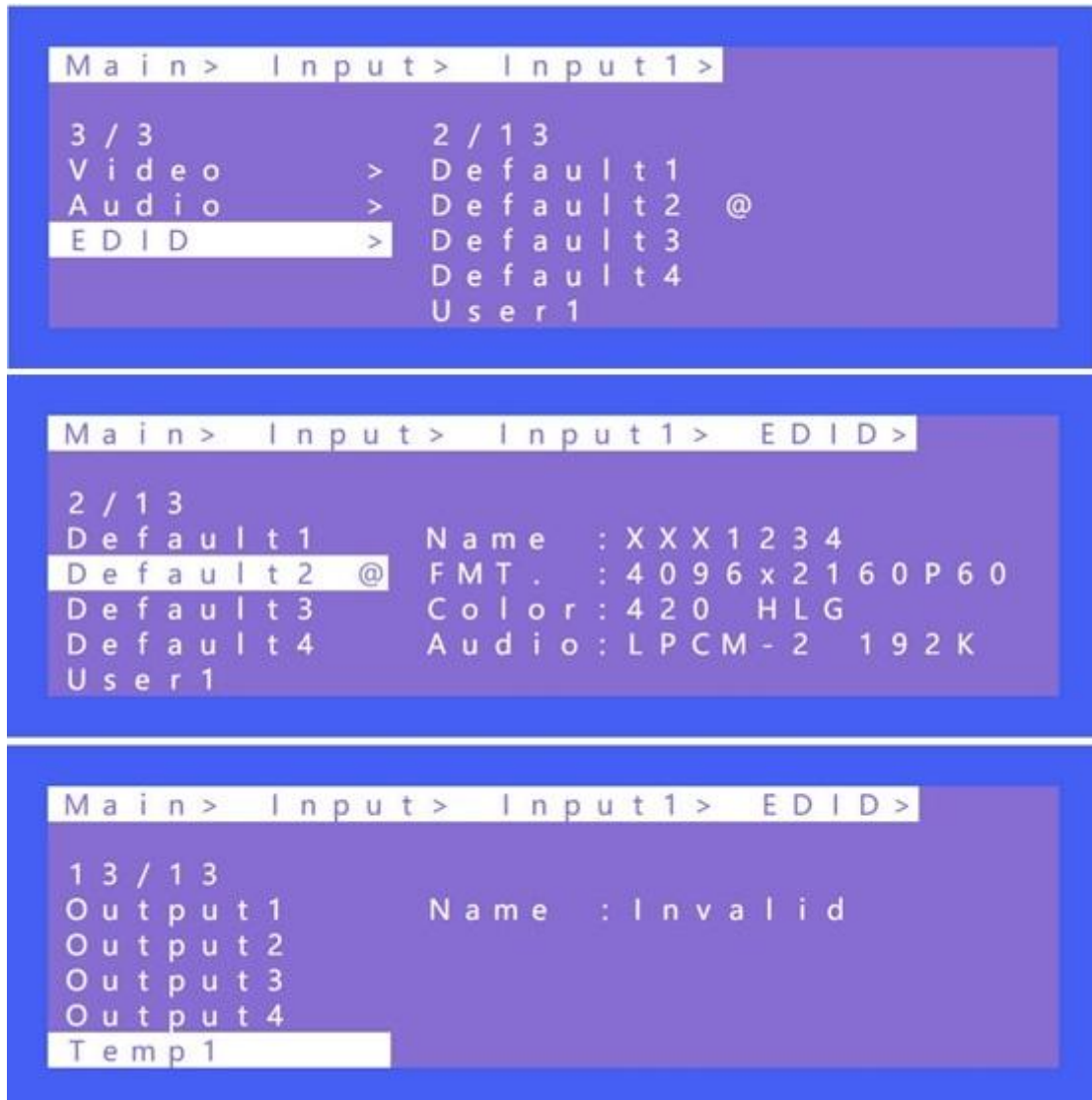
Example: Switching Default1 to input1:
1. Select "EDID" in the main menu and press "ENTER"
2. Press "UP" or "DOWN" to select " Input 1"(the fifth option indicates that select all inputs)
3. Click "ENTER" to enter the next sub-menu
4. Press "Default1" to complete the operation
5. The selected EDID will show some of its information (resolution, audio format, and audio channel)

Preset

Preset can save the current video, audio, EDID, and system settings. The unit supports 8 different presets. Presets can be modified and called using the web interface, remote, and front panel.
There are 4 Preset options as follows:
Clear: Remove the selected preset.
Save: Stores the current preset (can be covered).
Call: Activates the currently selected preset.
Demo: Plays the demo according to the scenes sequence.
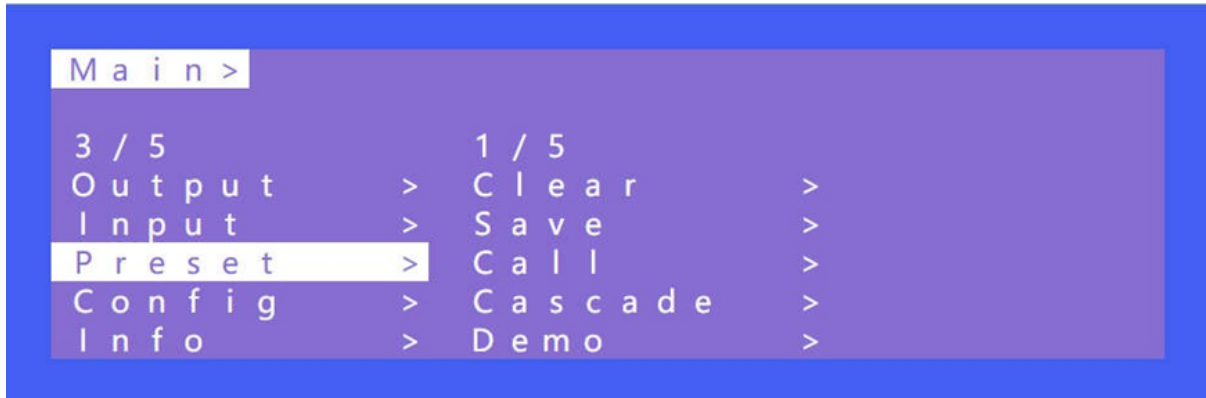
Operations:
1. Select "Preset" in the main menu and short press "ENTER" to enter the preset interface. Call indicates calling preset, Save indicates saving preset, Clean indicates cleaning preset.
2. Save preset: select "Save" in Preset and select "Mode" or "Scene" to save in "Scene" or "P2P"
3. Call preset: Select "Call" in Preset, then select a saved preset to complete the operation.
4. Clear preset: Select "Clear" in Preset, select a saved scene to complete the operation.
The saved preset scenes are restored to their default values.
For example:
Save: Preset+Save+Scene+Scene1
Call: Preset+Call+Scene+Preset1
Clear: Preset+Clear+Scene+Preset 1

```
Main>   Preset>   Clear>

1 / 2                    1 5 / 2 7
Mode              >      W - 2 x 1
 Scene            >      W - 2 x 1    2 x 1
                         W - 3 x 1
                         W - 4 x 1
                         M - 2 x 2         @
```

```
Main>   Preset>   Clear>

2 / 2                    1 / 9
Mode              >      Scene 1      @
 Scene            >      Scene 2
                         Scene 3
                         Scene 4
                         Scene 5
```
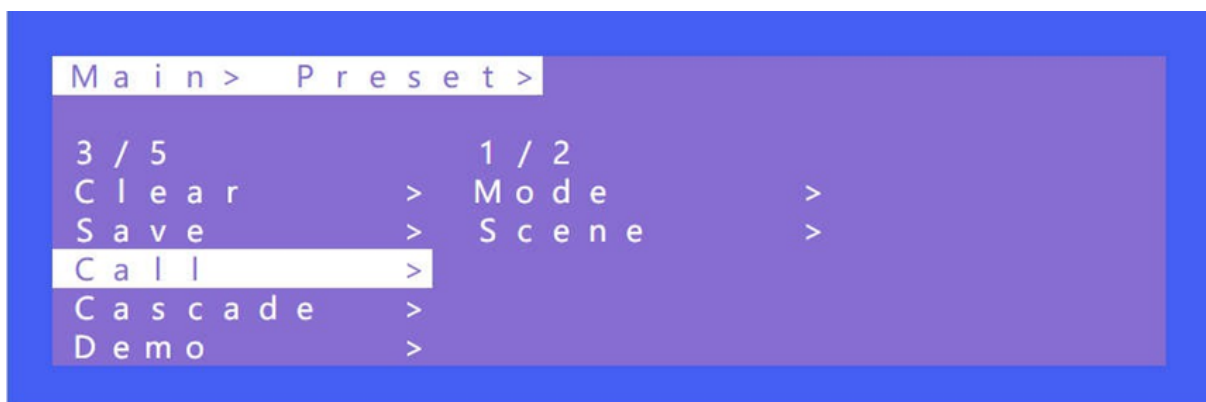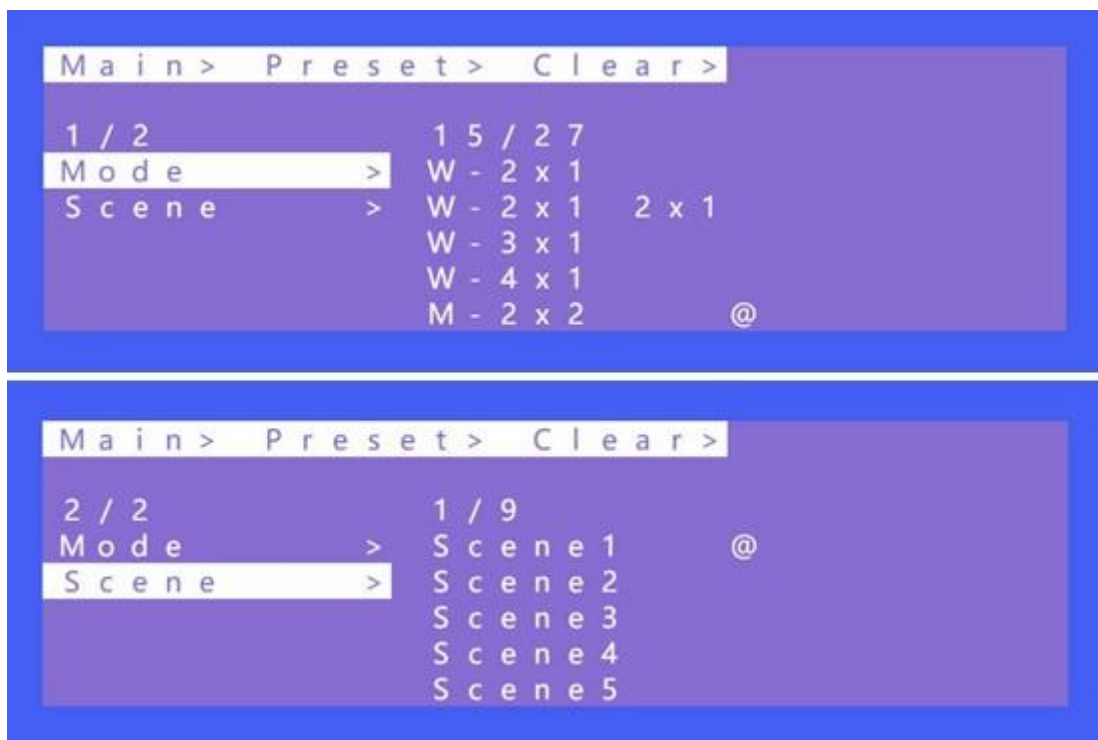
Cascade Video Wall:

Cascade allows users to combine multiple matrix units together to form a video wall that would not normally be possible for one unit alone.

H_NUM indicates the number of displays horizontally in the video wall.

V_NUM indicates the number of displays vertically in the video wall.

Numbering indicates the matrix's current position in the cascade sequence (Up to 5 matrices are supported for cascading).

```
Main>   Preset>

4 / 5                    1 / 3
Clear             >      H _ N U M         >
Save              >      V _ N U M         >
Call              >      Numbering >
Cascade           >
Demo              >
```
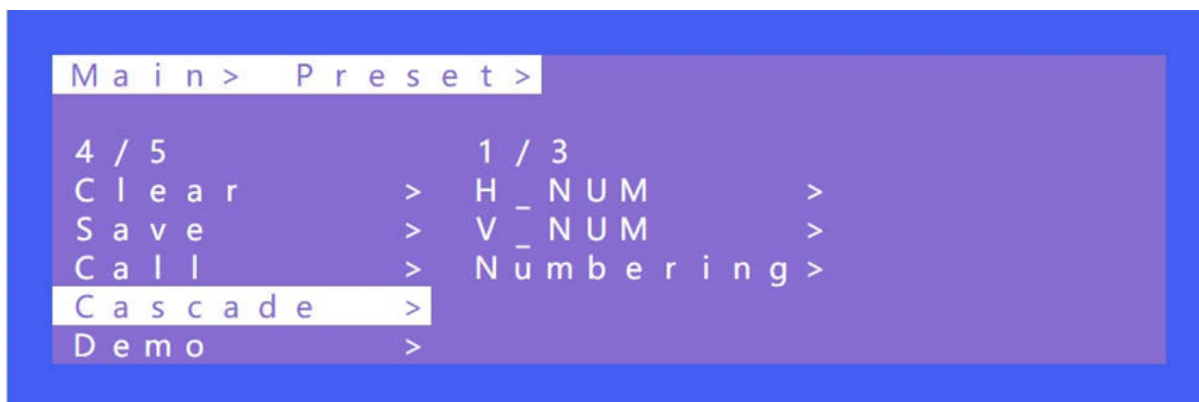
Instructions for operation:

Each matrix must be set to the same number of displays horizontal and vertical. Then set the "Numbering" of each matrix (numbering cannot be repeated). Next, connect each matrix to the corresponding display on the video wall. **Note** the output order must go in sequence.

For Example:

Creating horizontal 2, vertical 3 video wall (2x3).

Matrix 1's output 1~4 are connected to TV 1~4, the loop out of matrix 1 is connected to matrix 2's input; Matrix 2's outputs 1~2 are connected to TV 5~6.

A 2x3 video wall is generated

Demo operation:

Timer can set the rotation time, the default is "Endless", the minimum time is 3 seconds.

Select indicates if need to perform the scenario in rotation. If this parameter is set to yes, the scenario will be played. If this parameter is not set to yes, the scenario will be skipped.

```
Main >  Preset >  Demo >

1 / 2                    1 0 / 1 0
Timer            >    1   M
Select           >    1   M    3 0 S
                      2   M
                      3   M
                      E n d l e s s      @
```

```
Main >  Preset >  Demo >

2 / 2                    1 / 2 7
Timer            >    S - P 2 P          >
Select           >    S - I n p u t 1    >
                      S - I n p u t 2    >
                      S - I n p u t 3    >
                      S - I n p u t 4    >
```
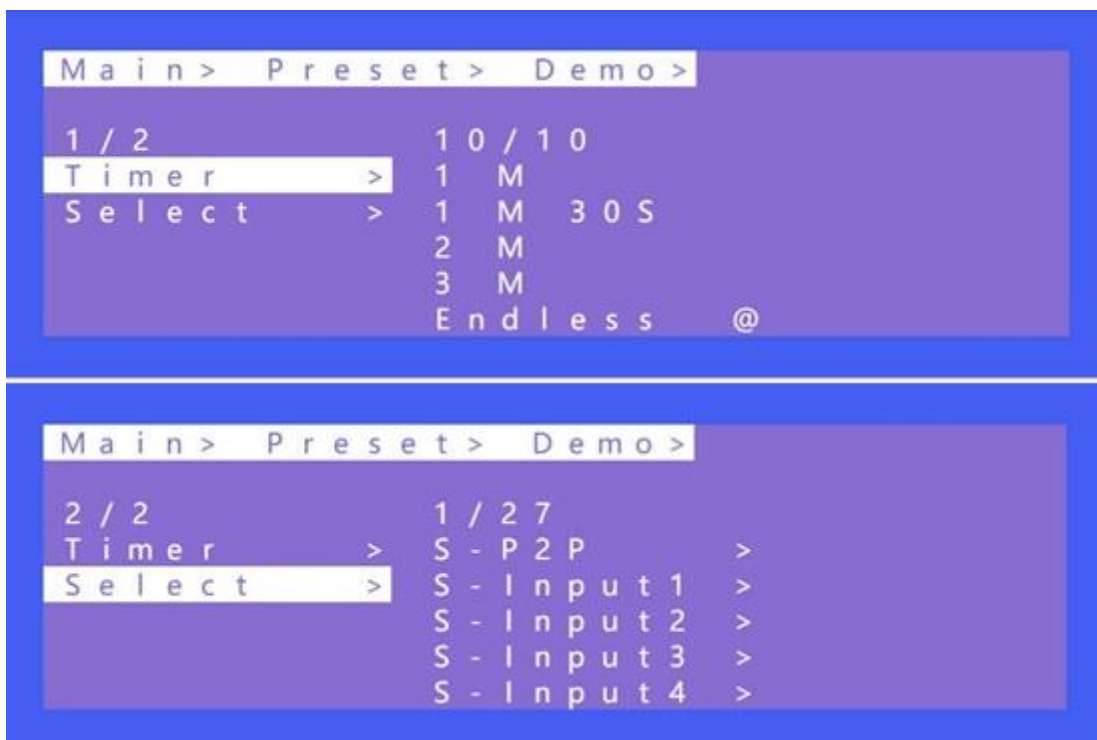
Config

Config can set Network, RS232, LCD, OSD, MENU, user EDID, and system.

```
Main>

4 / 5              1 / 7
Output      >    Network      >
Input       >    RS-232       >
Preset      >    LCD          >
Config      >    OSD          >
Info        >    Menu         >
```
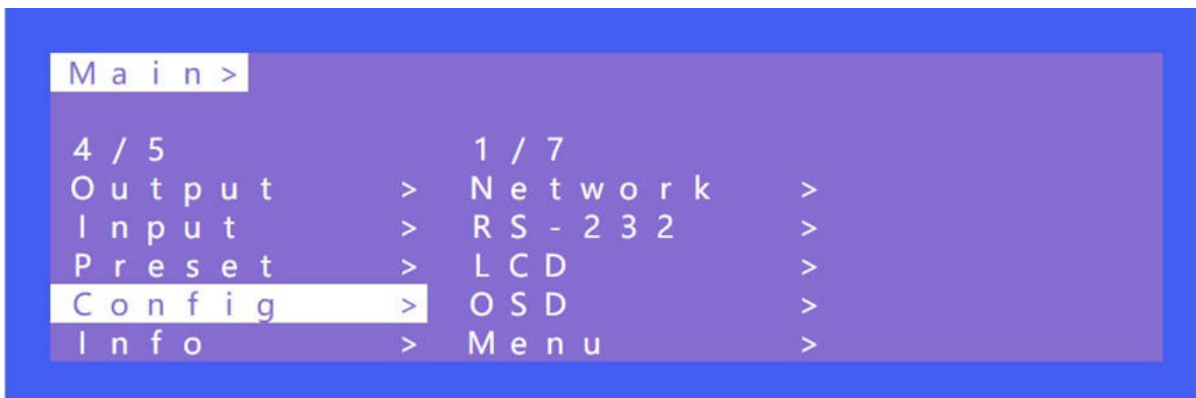
1)   Network Setting

Network can set DHCP, IP, Mask, Gateway, Port, and Mac. The Mac address cannot be changed.

The default IP address is 192.168.1.200

TCP/UDP protocol, default port: TCP 5000, UDP 5001
Baud Rate: 115200
Telnet: 23

```
Main>  Config>   Network>

1 / 6              1 / 2
DHCP        >    No              @
IP          >    Yes
MASK        >
Gateway     >
Port        >
```

```
Main>  Config>   Network>   DHCP>

1 / 2
No              @    DHCP:Off
Yes                  IP   :192.168.  1.169
                     MASK:255.255.255.   0
                     GW   :192.168.  1.   1
                     MAC  :4658-4E95-1A64
```
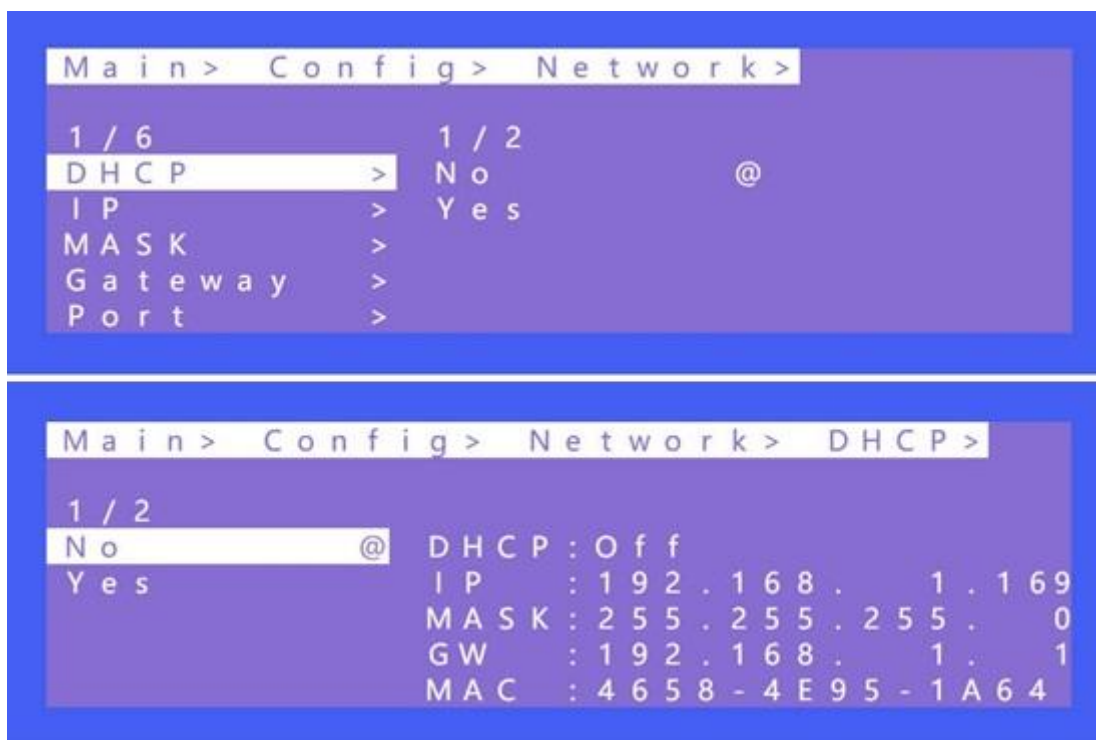
```
Main>  Config>  Network>

2 / 6              1 / 4
DHCP        >    Part1        >
IP          >    Part2        >
MASK        >    Part3        >
Gateway     >    Part4        >
Port        >
```

```
Main>  Config>  Network>  IP>

1 / 4              193 / 256
Part1       >    188
Part2       >    189
Part3       >    190
Part4       >    191
                 192              @
```

```
Main>  Config>  Network>  Port>

1 / 2              5000 / 65534
TCP         >    5000             @
UDP         >    5001
                 5002
                 5003
                 5004
```

```
...>>  Network>  Port>  TCP>

5000 / 65534
5000            @    DHCP : Off
5001                 IP    : 192 . 168 .    0 .   57
5002                 MASK : 255 . 255 . 255 .    0
5003                 GW    : 192 . 168 .    0 .    1
5004                 MAC   : 4658 - 4E9E - 0A6B
```

TCP/UDP port change operation:
1. Select "Config" in the main menu and press "ENTER"
2. Press "UP" or "DOWN" to select " network "
3. Click "ENTER" to enter the next sub-menu
4. Press "UP" or "DOWN" to select baud rate "Port" to enter the next sub-menu
5. Select "UDP" or "TCP"
6. Press "UP" or "DOWN" to select "1~65534" to complete the operation.

2) RS-232

Data, Stop, and Parity parameters are for display purposes only and cannot be modified.

```
Main>  Config>

2 / 7                    1 / 4
Network      >    Baud            >
RS - 232     >    Data            >
LCD          >    Stop            >
OSD          >    Parity          >
Menu         >
```

```
Main>  Config>  RS - 232>

1 / 4                    1 / 6
Baud         >    115200          @
Data         >    57600
Stop         >    38400
Parity       >    19200
                  9600
```
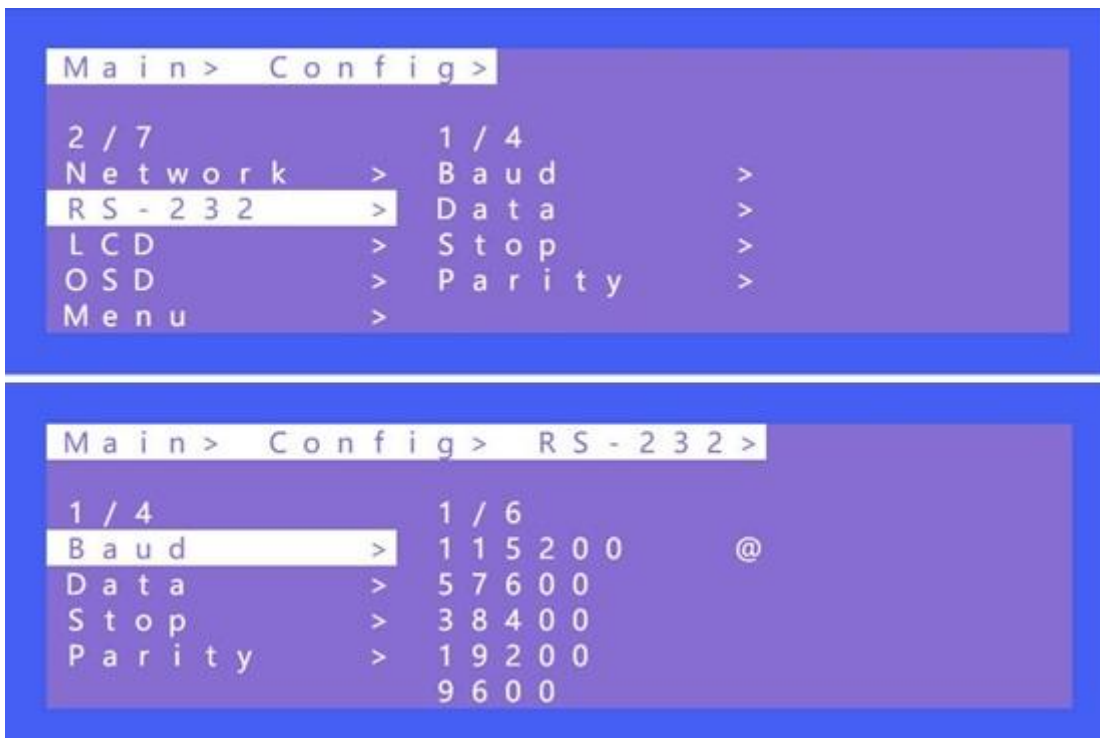
3) LCD

Bright can adjust the brightness of the LCD screen, and Timer can set the backlight time.
The default backlight level is 8 and the time is 30 seconds.
Bright backlight levels range from 0-8, and 0 indicates off.
Timer can be set from 3 seconds ~ Endless.

```
Main>  Config>

3 / 7                    1 / 2
Network      >    Bright          >
RS - 232     >    Timer           >
LCD          >
OSD          >
Menu         >
```
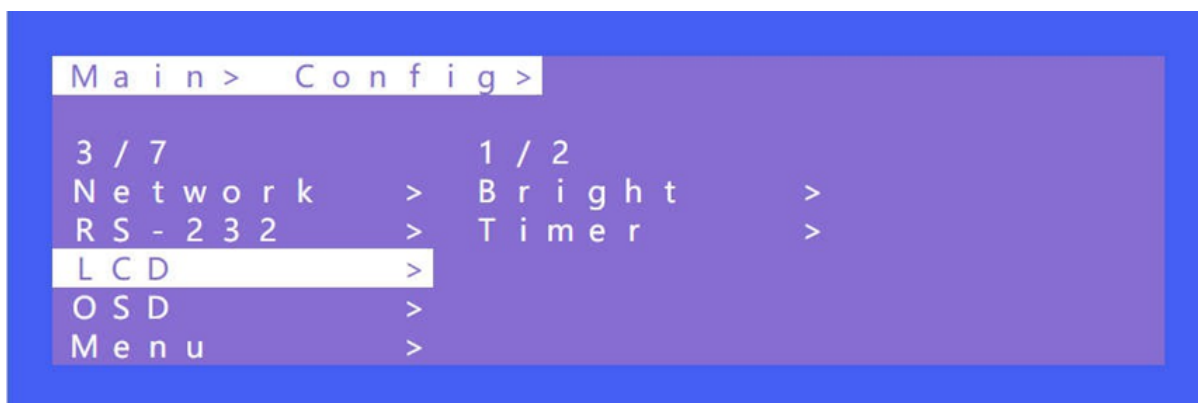
```
Main>  Config>  LCD>

2 / 2              6 / 1 1
Bright        >   3 0 S              @
Timer         >   1   M
                  1   M    3 0 S
                  2   M
                  3   M
```

```
Main>  Config>  LCD>

1 / 2              9 / 9
Bright        >   4
Timer         >   5
                  6
                  7
                  8                  @
```

4)   OSD Settings

There are 4 options in OSD: User, Time, Menu, Info.
User indicates the output coordinate time of OSD.
Time indicates the running time after the device is powered on.
Menu indicates that the LCD is mapped to the TV.
Info indicates the displayed time of audio and video information.
When the parameter is set to 0 seconds, OSD display is turned off. By default, User and time are endless, menu and INFO are 30 seconds

```
Main>  Config>

4 / 7              1 / 4
Network       >   User        >
RS - 2 3 2    >   Time        >
LCD           >   Menu        >
OSD           >   Info        >
Menu          >
```

5)   Menu

Timer indicates the time of menu returns to the channel. Default 30s.
Select Run indicates whether the confirm button of the last sub-menu is enabled.
If it is set to disable, you need to press "ENTER". If it is set to enable, you do not need to press "ENTER"

```
Main>  Config>

5 / 7                1 / 2
Network      >   Timer          >
RS-232       >   SelectRun>
LCD          >
OSD          >
Menu         >
```

```
Main>  Config>  Menu>

1 / 2                10 / 10
Timer          >   1  M
SelectRun>         1  M   30S
                   2  M
                   3  M
                   Endless     @
```

```
Main>  Config>  Menu>

2 / 2                2 / 2
Timer          >   Disable
SelectRun>         Enable      @
```

6)   User EDID

User EDID can store the EDID of the output display device of the connection matrix to user1~4, which can be stored in default, output, and temp1, and then used in the EDID list.

```
Main>  Config>

6 / 7                    1 / 5
L C D            >    U s e r 1        >
O S D            >    U s e r 2        >
M e n u          >    U s e r 3        >
U s e r    E D I D >   U s e r 4        >
S y s t e m      >    A l l            >
```

7)   System

System Settings include reboot, Power, and Factory. Reboot restarts the device, power controls the device's sleep state, and factory is used to factory reset the unit to its original configuration.

```
Main>  Config>

7 / 7                    1 / 3
L C D            >    R e b o o t      >
O S D            >    P o w e r        >
M e n u          >    F a c t o r y    >
U s e r    E D I D >
S y s t e m      >
```

```
Main>  Config>  System>

1 / 3                    1 / 2
R e b o o t      >    N o           @
P o w e r        >    Y e s
F a c t o r y    >
```

Timed Off

Timed Off indicates timed standby, Timed On indicates timed wake up, and Auto Sleep puts the unit to sleep automatically if no signal is detected.

```
Main>  Config>  System>

2 / 3              1 / 3
Reboot        >    Timed  Off >
Power         >    Timed  On   >
Factory       >    Auto  Sl.. >
```

Factory

Simple: Partially restores factory settings excluding network settings.
User: Restores all factory settings.

Info

Query device information, including input, output, system, and log. The information can only be viewed and cannot be set or changed.
Input: resolution information of the signal sources
Output: EDID information of the TV of outputs.
System: System information includes Web, version, and company info.
Log: Matrix log

```
Main>

5 / 5              1 / 4
Output        >    Input          >
Input         >    Output         >
Preset        >    System         >
Config        >    LOG            >
Info          >
```

Remote Control

⏻ : Standby or power on

🔇 : Mute button

⏮ : Return to previous level

⏭ : Move to next level

⏹ : Picture off

🟥🟦 : Page turn by 100 of the last sub-menu

🟨🟩 : Page turn by 10 of the last sub-menu

⌂ : Menu

ALL : All output

▲ : Up

◀ : Menu

OK : OK

▶ : Enter

▼ : Down

↻ : Return or exit

Back : Menu

1	2	3
4	5	6
7	8	9

When selecting Output, means Out1--Out4
When selecting Input, means In1--In4

▤ : Preset

0 : (N/A)

╼ : Point to Point 1-1, 2-2, 3-3, 4-4

Audio Extraction

HDMI Audio

Default HDMI audio output supports uncompressed audio formats PCM and LPCM 2.0. The maximum sampling rate support 192KHZ
COPY EDID audio formats are forced into LCPM 2.0.

HDMI Source:
1. ENC1~4 indicates that HDMI outputs select the embedding audio
2. HDMI1~4 indicates that HDMI outputs select other audio source
3. Auto HDMI indicates that the input signal source is switched with the matrix, but the audio state is not switched
4. Auto ENC indicates the HDMI sound will be overwritten and replaced with the corresponding embedded audio
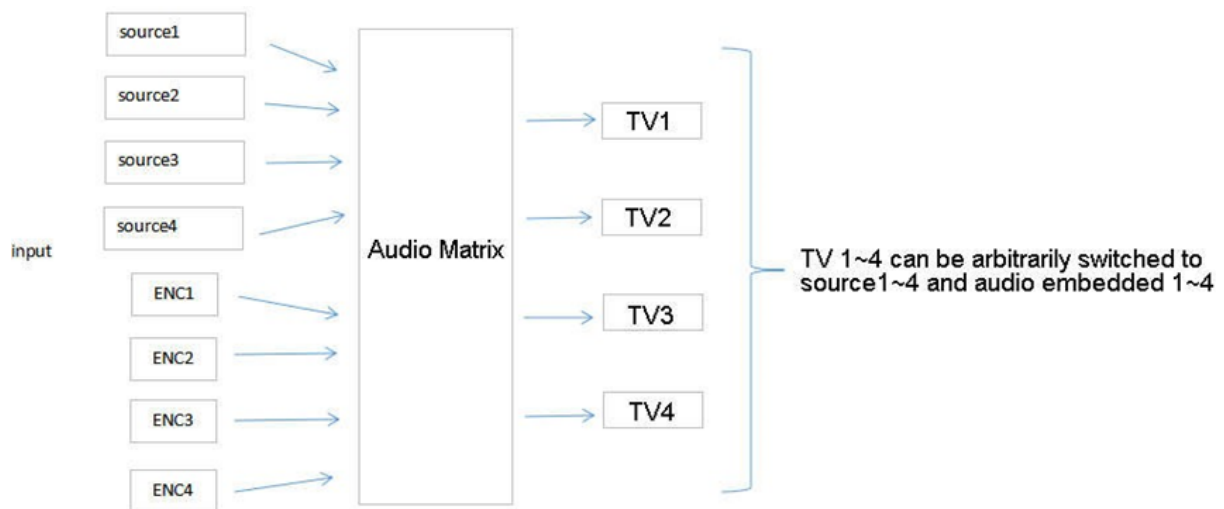
Audio Extraction
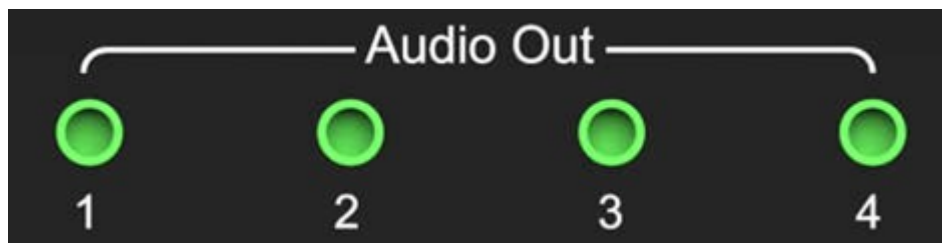
Analog Audio
1. HDMI 1~4 indicates that HDMI output audio selects audio from another input signal source.
2. Auto HDMI will have audio follow the HDMI Matrix Switching.
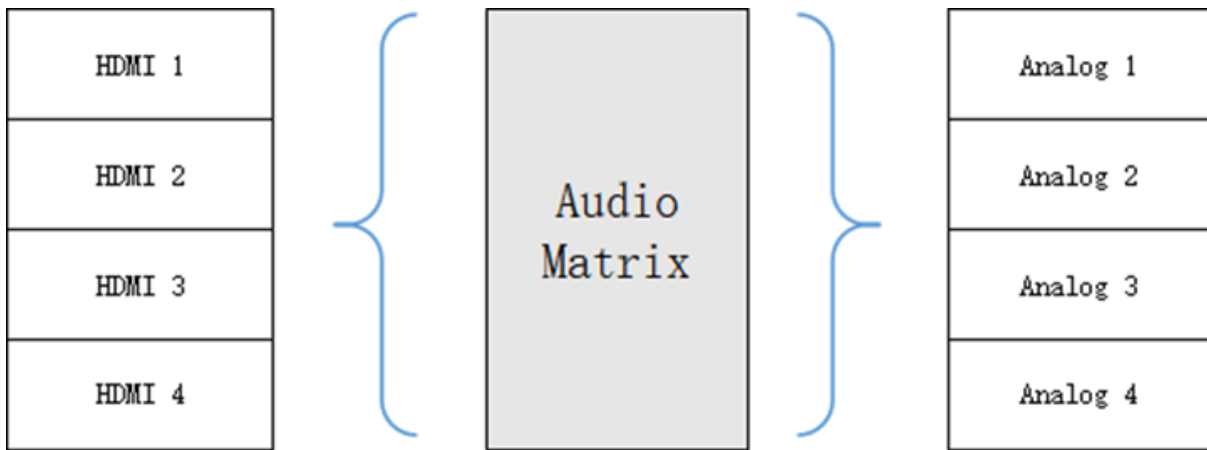
RS232 Control

Com Port Settings

Choose the correct COM port that connects to the PC in enter the following information in the parameters configuration area for your command application.

Serial Port Default Settings	
Baud Rate	115200 bps(Default)
Parity Bits	None
Data Bits	8
Stop Bits	1

Command List

1).All commands start with "#"
2)."_" the underline cannot be omitted.
3) Command head, Parameter and target need to add one "SPACE".
4) Out can be followed by multiple digits, separated by commas (,). For example, "#video_d out3,2,1 source=3"
The following table is only an example. Please refer to the list of instructions.

Type	Format	Value	Regulation
Command head	#cmd	without	
Explain	Can be used to search command,after receiving command, the system will feedback all open command format fields		
Example1	#cmd		
	Search all open command		

Scene Examples

Video Wall Mode
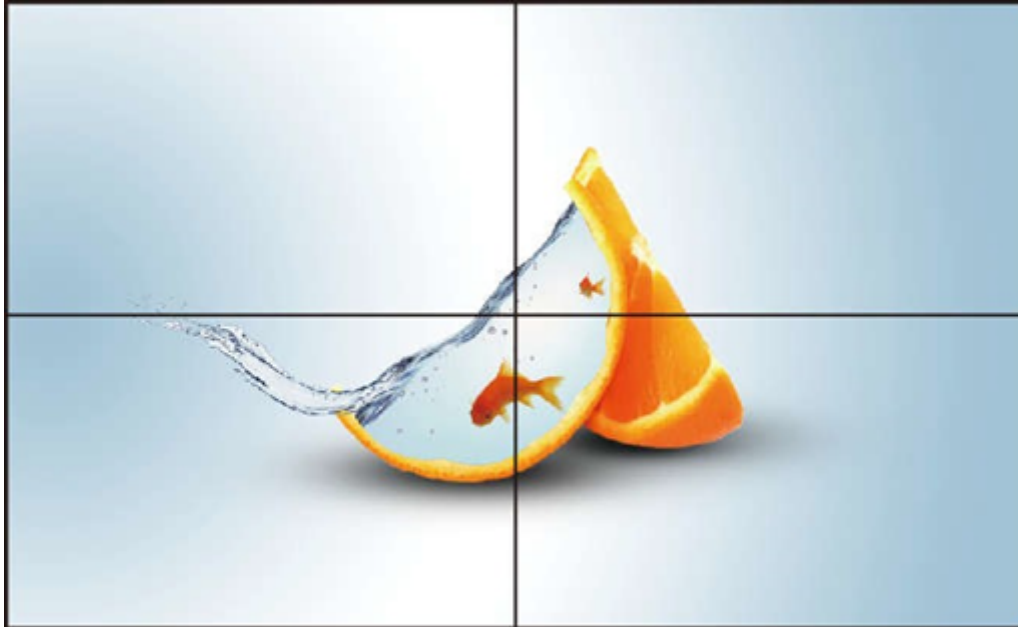
W-2x2 : 2 Vertical x 2 Horizontal

W-1x2 : 1 Vertical x 2 Horizontal
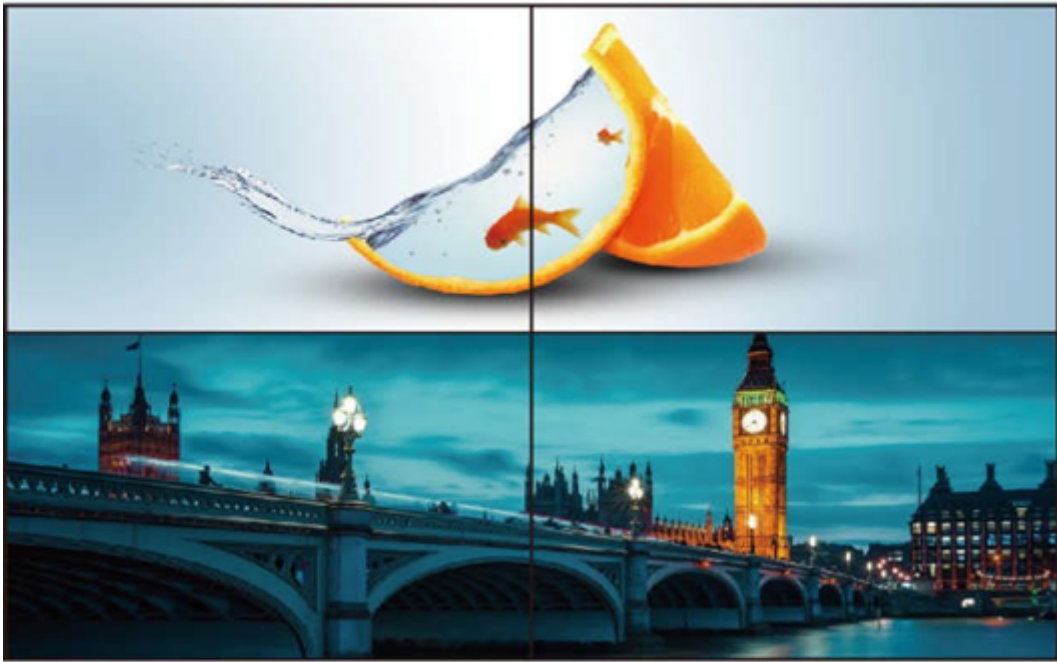
W-1x2 1x2 : 1 Vertical x 2 Horizontal
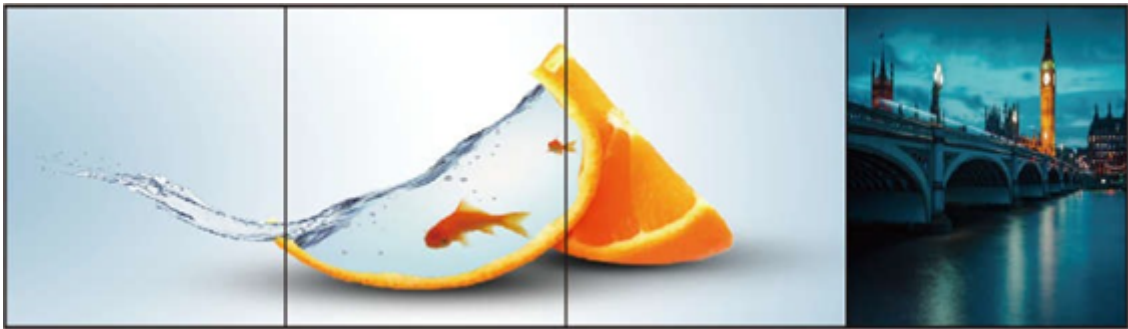
W-1x3: 1 Vertical x 3 Horizontal
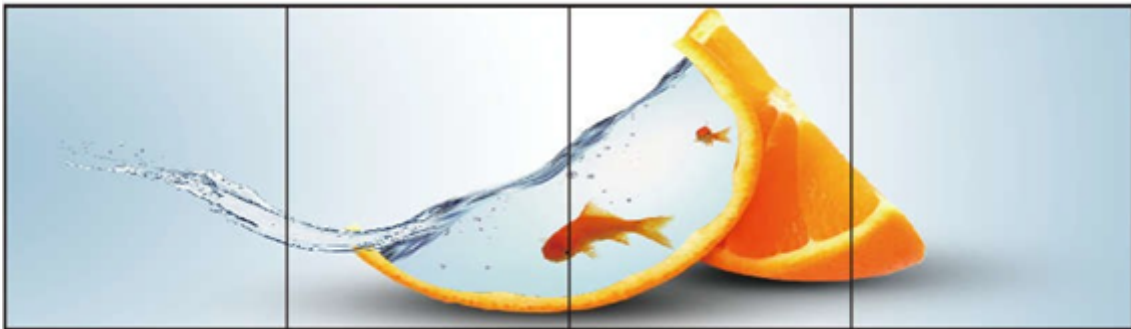
W-1x4: 1 Vertical x 4 Horizontal

W-2x1 : 2 Vertical x 1 Horizontal
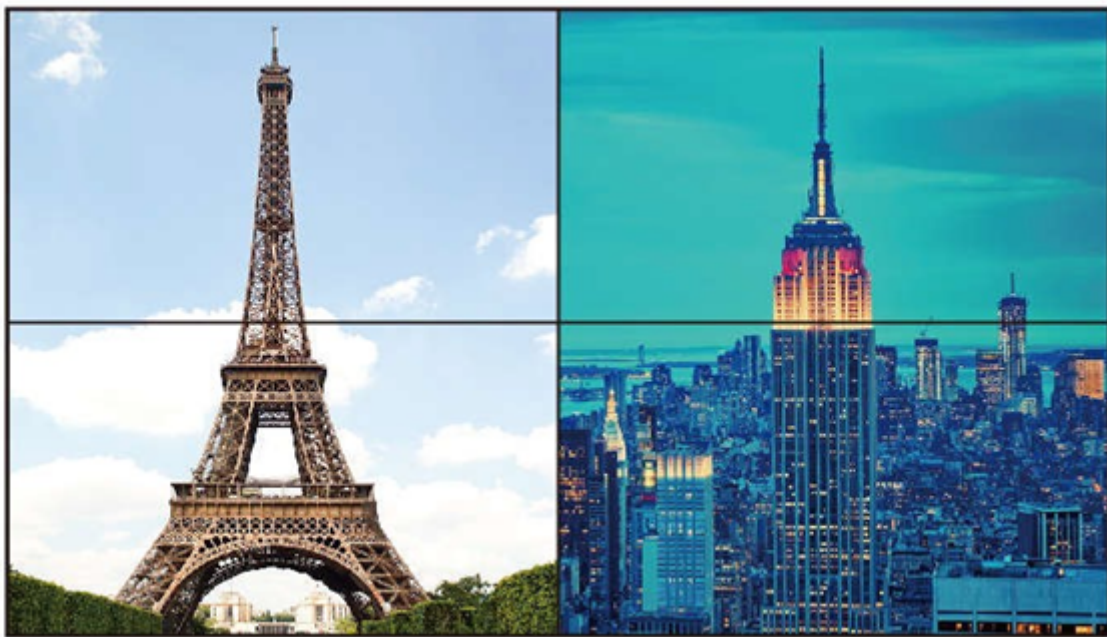
W-2x1 W-2x1: 2 Vertical x 1 Horizontal
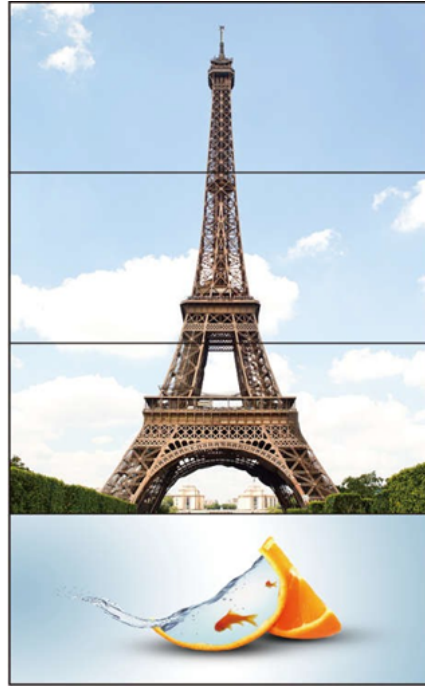
W-3x1: 3 Vertical x 1 Horizontal
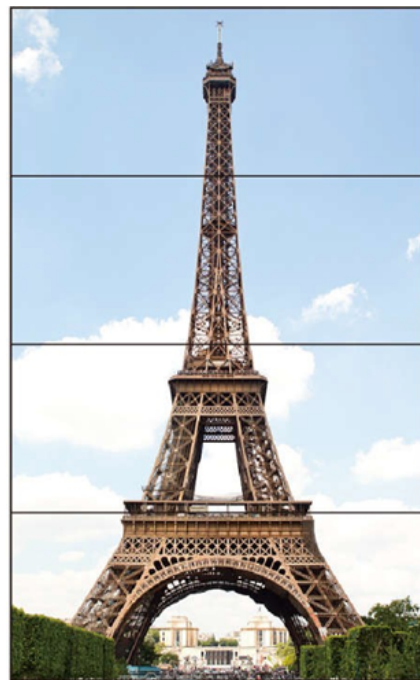
W-4x1 : 4 Vertical x 1 horizontal

Multiview Mode

M-2x2

M-3x1-R

M-3x1-L

M-3x1-U

M-3x1-D

M-1+234 A

M-1+2 1+3 1+4 A

M-1+2 3+4 A

M-1+34 2+34 A

M-POP A

M-2x1+34 A

M-2x1+32x1+4 A

Image Cropping and TV Coordinate Changes

Input starting point：CROP X0(0), CROP Y (0),
Input ending point：CROP X1(3000), CROP Y0(3000)
Input scaling starting point：ZOOM X0(0), ZOOM Y0(0),
Input scaling ending point：ZOOM X1(6000), ZOOM Y0(6000)
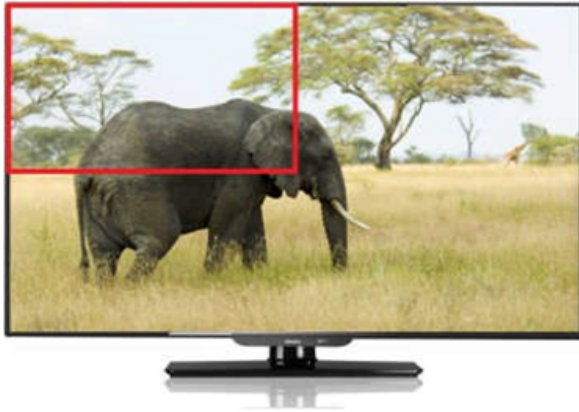
Before cropping　　　　　After cropping

Cascading Video Wall

To perform a cascade connection multiple matrices are required. All of the matrices need to set the same number of video wall displays in the same format. The matrices flow from 1~2~3 respectively when connected to the TV wall. See the example below:
A 3x3 video wall; Matrix1 connects to TV 1 to 4, Matrix2 connects to TV 5 to 8, Matrix3 connects to TV 9, the front matrix loops out to connect to the next matrix's input 1
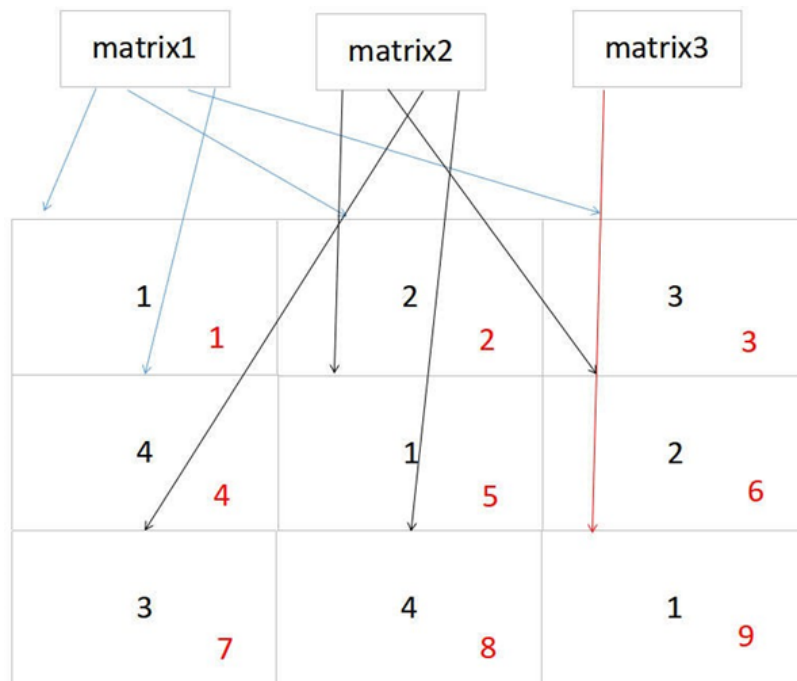
***The black number is the output order of the matrix, and the red is the position of the TV wall

Web Control

Change IP Address of PC

Before configuring the device through the website, it is necessary to configure the IP address of the computer to ensure that the computer and the device are set in the same network segment.

1. Open the network control center and set the computer's IP address:
2. Choose "Use the following IP address", and set the IP address to 196.168.1.x (where x ranges from 0 to 254, but cannot be with the device's default IP address **192.168.1.200**)
3. Subnet mask set to 255.255.255.0
4. Gateway set to 192.168.1.1
5. Click "OK"
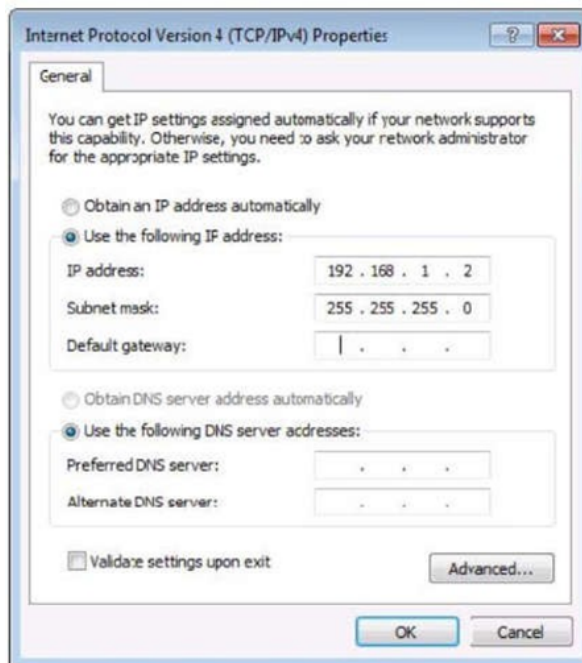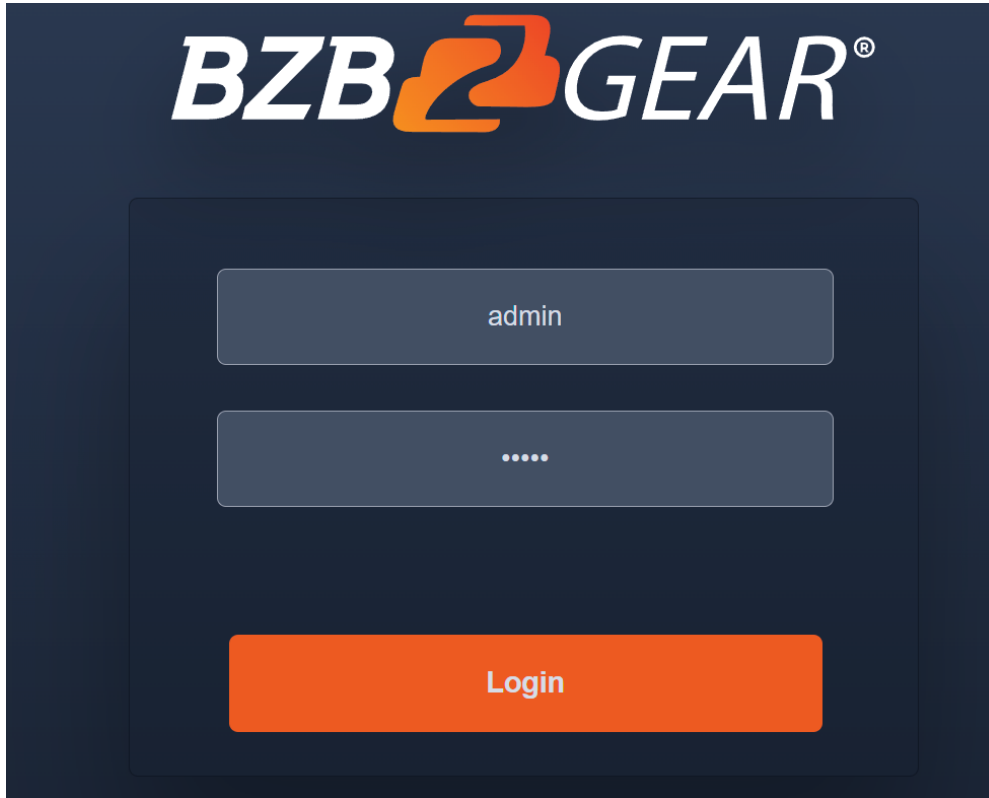
Log in by browser

Enter the Default IP address (192.168.1.200) to access the login screen in your preferred web browser.
Type in the username and password (default user and default password: admin)

Web Interface Control

Status

1. In the Status interface, you can view the matrix information
2. Input Status displays the connection status, resolution, color space, audio, and HDCP information from the input signal source
3. Output Status will display partial EDID information of the connected display such as connection status, resolution, color space, and audio.
4. Firmware version displays the current MCU and HTML versions for the matrix.

Input Status

	Connected	Resolution	Color	Audio	HDCP
MK	√	3840×2160P 59.94	4:2:2 8bit SMPTE	XXX-2 48K 24bit	HDCP2.2
Bluray	√	4096×2160P 60	4:2:0 8bit SDR	XXX-2 44.1K 24bit	None
bzbgear	√	4096×2160P 60	4:2:0 8bit SDR	XXX-2 44.1K 24bit	None
animals	√	3840×2160P 59.94	4:2:2 8bit SMPTE	XXX-2 48K 24bit	HDCP2.2

Output Status

	Connected	Resolution	Color	Audio
TV 1	×	×	×	×
TV 2	×	×	×	×
TV 3	×	×	×	×
TV 4	×	×	×	×

Firmware Version

MCU Version :   V0.0.8

HTML Version :   V0.0.6

Input

1. Edit Name: The input name can be changed by clicking in the "In 1-4" fields.
2. Video: Click the buttons to enable or disable the video inputs.
3. Audio Delay(ms): The default is Auto, click "-" or "+" to adjust (range 0-50, Auto).
4. Copy EDID From: Default1-4, User-4, Output1-4, and Temp1 which can be switched on any of the inputs

5. Copy EDID of sink to User1~4

6. USER EDID can be saved as a Bin document for User1~4. Click Browse to find the route of the EDID, select User1~4 and click upload to save it.

Output Menu
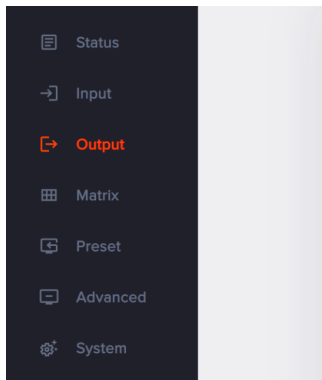
Output	Edit Name	Video	HDMI Audio	Audio Source	Audio Extraction	Extraction Source	Resolution
Out 1	TV 1	On Off	On Off	Audio Follow ⌄	On Off	Audio Follow ⌄	4K60 ⌄
Out 2	TV 2	On Off	On Off	Audio Follow ⌄	On Off	Audio Follow ⌄	4K60 ⌄
Out 3	TV 3	On Off	On Off	Audio Follow ⌄	On Off	Audio Follow ⌄	4K60 ⌄
Out 4	TV 4	On Off	On Off	Audio Follow ⌄	On Off	Audio Follow ⌄	4K60 ⌄
All				Audio Follow ⌄		Audio Follow ⌄	4K60 ⌄

1. Edit Name: Output name can be changed, double click output1~4 to modify
2. Video: Click the green button to enable or disable the video outputs.
3. HDMI Audio: Click the button to enable or disable the audio outputs.
4. Audio Source: Switch HDMI output audio, click the drop-down box to select HDMI1-4, Audio In 1-4, Audio Follow Video, or Use Embedded Audio and the changes will take effect automatically.

HDMI 1
HDMI 2
HDMI 3
HDMI 4
Audio In 1
Audio In 2
Audio In 3
Audio In 4
Audio Follow Video
Use Embedded Audio

5. Audio Extraction: Turn on/off Audio Extraction
6. Extraction Source: Audio extraction switching, click the drop-down list box to select HDMI 1-4 and Audio Follow Video options. The changes will take effect automatically.
7. Resolution: Output video format, the default is auto. Following the output TV EDID specifications, users can manually select 4K60, 4K30, 1080P60, and 720P60.

4K60
4K30
1080P60
720P60
Auto
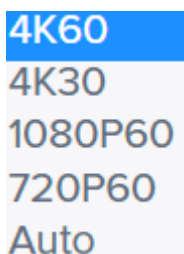
Matrix

1. The names of the inputs and outputs that can be customized in the previous two sections are displayed on the Matrix page with their new names. Change source and display pairings by simply clicking one of the buttons.
2. Selecting the "All" output will change all outputs to the same selected input source.
3. When the button is blue, it indicates the input signal source is selected for the corresponding output.

Matrix

	MK	Bluray	bzbgear	animals
TV 1	MK	Bluray	bzbgear	animals
TV 2	MK	Bluray	bzbgear	animals
TV 3	MK	Bluray	bzbgear	animals
TV 4	MK	Bluray	bzbgear	animals
All	MK	Bluray	bzbgear	animals

Preset Menu

Preset can be used to call, save, clear, and customize the preset name.

Preset

Mode	Preset Selection	Edit Name	Clear	Save	Call
Matrix	Default (Point-to-P⌄	Default	Clear	Save	Call
Video Wall	2x2 ⌄	2x2	Clear	Save	Call
Multiview	2x2 ⌄	2x2	Clear	Save	Call
Scene	1 ⌄	1	Clear	Save	Call

1. Matrix allows users to customize up to 5 presets. By default, selecting one of the inputs will change all outputs to the selected input source by default. Point-to-Point passes inputs to their corresponding outputs. Click the drop-down box to select a preset and then click "Call" to recall a preset. Click "Save" to save the current scene which can be customized using the "Matrix" page. Click "Clear" to clear the scene and return it to the default value.

Default (Point-to-Point)
MK
bluray
bzbgear
animals
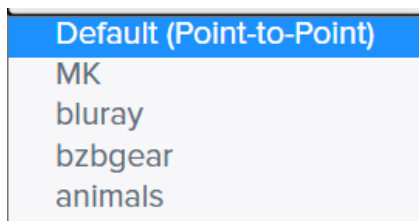
2. Video Wall allows users to pick a predefined video wall layout. Click the drop-down box to select a layout and then click "Call" to activate the selected video wall. Click "Save" to save the current scene, and click "Clear" to clear the scene to its default value. Change the wall source by selecting the input from the "Matrix" page.
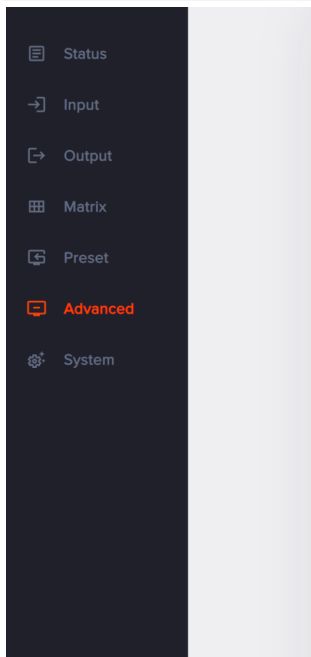
2x2
1x2
1x2 1x2
1x3
1x4
2x1
2x1 2x1
3x1
4x1
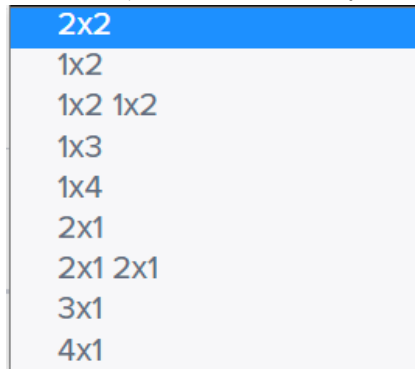
3. Multiview can display up to 4 sources on a single display. There are multiple multiview layouts which are predefined. Sources for each scene can be customized by clicking the drop-down box to select a layout and then choosing sources for outputs on the "Matrix" page. Click "Call" to recall a saved scene, click "Save" to save the current scene, and click "Clear" to clear the scene to its default value.

2x2
3x1 R
3x1 L
3x1 U
3x1 D
1+234 A
1+2 1+3 1+4 A
1+2 3+4 A
1+34 2+34 A
POP A
2x1+34 A
2x1+3 2x1+4 A
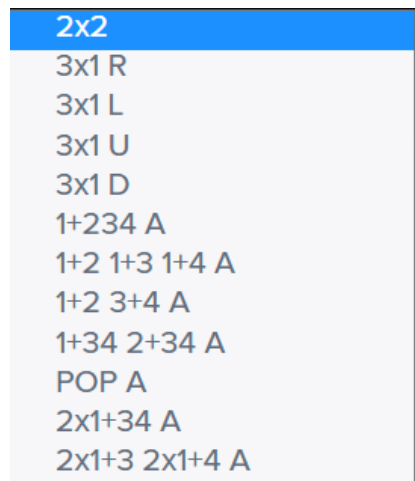
4. Scene can save and customize an additional 8 presets.

Advance

Advanced

Output	PIP	Crop-X0	Crop-Y0	Crop-X1	Crop-Y1	Zoom-X0	Zoom-Y0	Zoom-X1	Zoom-Y1	Confirm
TV 1	On Off	0.00%	0.00%	100.00%	100.00%	0.00%	0.00%	50.00%	50.00%	Apply
TV 2	On Off	0.00%	0.00%	100.00%	100.00%	50.00%	0.00%	100.00%	50.00%	Apply
TV 3	On Off	0.00%	0.00%	100.00%	100.00%	0.00%	50.00%	50.00%	100.00%	Apply
TV 4	On Off	0.00%	0.00%	100.00%	100.00%	50.00%	50.00%	100.00%	100.00%	Apply
All	On Off	0.00%	0.00%	100.00%	100.00%	0.00%	0.00%	100.00%	100.00%	Apply

Gap

	Out 1	Out 2	Out 3	Out 4	ALL
Gap X	0.00%	0.00%	0.00%	0.00%	0.00%
Gap Y	0.00%	0.00%	0.00%	0.00%	0.00%

1. PIP On/Off can turn picture in picture on or off on the selected display.
2. Crop-X0 (Image cropping starting point of horizontal coordinates, range 0~6000)
   Crop-Y0 (Image cropping starting point of vertical coordinates, range 0~6000)
   Crop-X1 (Image cropping ending point of horizontal coordinates, range 0~6000)
   Crop-Y1 (Image cropping ending point of vertical coordinates, range 0~6000)
   Zoom-X0 (Image scaling starting point of horizontal coordinates, range 0~6000)
   Zoom-Y0 (Image scaling starting point of vertical coordinates, range 0~6000)
   Zoom-X1 (Image scaling ending point of horizontal coordinates, range 0~6000)
   Zoom-Y1 (Image scaling ending point of vertical coordinates, range 0~6000)
3. Gap adjusts the bezel alignment for the selected display. X adjusts the image on the horizontal axis and Y on the vertical.

   **Press "Apply" after inputting the coordinates.

System

Network Settings

Mac Address	46:58:4E:95:72:66
IP Address	192.168.30.237
Subnet Mask	255.255.255.0
Gateway	192.168.30.1
DHCP	On Off
TCP Port	5000

Apply

Account Management

Username	
New Password	
Confirm Password	

Apply

System Management

Reboot	**Reboot**
Reset User Settings	**Reset User Settings**
Factory Restore	**Factory Restore**

1. Network displays relevant information such as Mac Address, IP Address, Subnet Mask, and Gateway. Fields will become editable and can be customized when the DHCP option is set to "Off."
2. Account Management allows users to change the login information of a user.
3. Reboot: Power cycle the device.
4. Reset User Settings: Partial factory reset settings such as presets and matrix layouts but it will exclude network settings.
5. Factory Restore: Restore all settings to factory defaults.

Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone	**Email**	**Live Chat**
1.888.499.9906	support@bzbgear.com	bzbgear.com

Warranty

BZBGEAR Pro AV products and cameras come with a three-year warranty. An extended two-year warranty is available for our cameras upon registration for a total of five years.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

Mission Statement

BZBGEAR is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGEAR delivers quality products designed with users in mind.

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