![BZB GEAR - Solutions to Amplify Your World™]

# BG-4K-VP88

**4K60Hz HDMI 8X8 Seamless Matrix, Video Wall, & Multi-Viewer**

**with Audio Embedding and Extraction**

# User Manual

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## 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-VP88 is a 4K60hz HDMI 2.0 seamless matrix with 8 hdmi inputs and 8 hdmi outputs that also supports Multi-viewer & Video wall modes. The unit can be controlled through TCP / IP, RS232, the included remote controller or the front panel buttons. The BG-4K-VP88 has the ability to equalize and amplify HDMI signals to ensure that they are transmitted without loss of quality. The unit also features advanced EDID management as well as analog audio embedding and extraction.

## Features

- 8 x HDMI Inputs and 8 x HDMI Outputs

- HDMI 2.0 4K60Hz YUV 4:4:4 up to 18Gbps

- Seamless matrix switching, multi-viewer, and video wall functionality

- HDCP 1. x / 2.2 compliant

- TCP/IP, RS232 Commands, IR and front panel buttons control

- EDID management and USB firmware upgradable

- PCM 2.0 analog audio embedding and audio extraction

- Audio can be independently switched

- 1U Rack design with rack ears

## Packing List

- 1x BG-4K-VP88
- 1x DC 12V/3A power adapter
- 1x Remote control

- 1x Wide-Band IR Receiver cable
- 1x User Manual
- 1x 3 Pin Phoenix terminal plug

# Specifications

| | |
|---|---|
| **HDMI Ports** | 16x HDMI Type A 19 pin, HDMI 2.0b Standard |
| **HDMI Audio** | LPCM 5.1, DTS 5.1, Dolby 5.1 |
| **HDMI Resolution** | 4K60/50/30/25/24hz<br>1080P60/50/30/25/24hz<br>720P60/50/30hz |
| **HDMI Version** | HDMI 2.0b/HDCP1.4/2.2 |
| **Max Resolution** | 4K60Hz (4:4:4) |
| **Data Speed** | 18Gbps (6Gbps per color) |
| **Clock** | 600Mhz |
| **Color space** | RGB,YUV, 4:4:4, 4:2:2 |
| **Bit** | 8bit,10bit,12bit |
| **Distance** | HDMI 2.0 (4K60) Input≤10m / Output≤10m, 4K30/1080P input≤15m / Output≤15 |

# Operation Controls and Functions

## Front Panel



| No. | Name | Function Description |
|---|---|---|
| 1 | **LCD Screen** | LCD Screen for showing the running data such as matrix status and menu items. |
| 2 | **Output 1~8** | Buttons for Matrix switching, Long press means all selected |
| 3 | **Input 1~8** | Button for Matrix switching, Long press means all selected |
| 4 | **Preset** | Used to set and recall preset configurations. |
| 5 | **UP** | Function button: UP |
| 6 | **Lock** | Press for over 1 second and the panel buttons will be locked.<br>Re-press to unlock the front panel. |
| 7 | **Menu** | Open the onscreen menu. |
| 8 | **Down** | Function button: Down |
| 9 | **Enter** | Function button: Enter |
| 10 | **IR Ext** | Built in IR Receiver. |
| 11 | **Power Indicator** | Illuminated when the device is powered on. |
| 12 | **IR Indicator** | IR feedback indicator flashes when receiving remote controller commands. |

## Rear Panel



| No. | Name | Function Description |
|-----|------|---------------------|
| 1 | Audio Embedded 1~8 | 3.5MM ports, Sampling Rate: 32K~192Khz |
| 2 | Audio Extraction 1~8 | 3.5MM ports, Sampling Rate: 32K~192Khz |
| 3 | SPDIF Extraction 1~8 | Coaxial Port, Sampling Rate: 32K~192Khz |
| 4 | RS232 Port | 3PIN Phoenix port：TX - GND - RX |
| 5 | IR EXT | 3.5mm ports, supports 38~52Khz frequency |
| 6 | LAN Port | WEB GUI Control |
| 7 | HDMI Inputs 1~8 | A type 19 PIN-HDMI Port |
| 8 | HDMI Outputs 1~8 | A type 19 PIN-HDMI Port |
| 9 | Power | AC110V~240V |

## OSD Information

Signal switching includes 8 switching channels which can be configured as one-to-one or one-to-many to form a matrix of 1×8 ~ 8×8. Any input can go to any output.

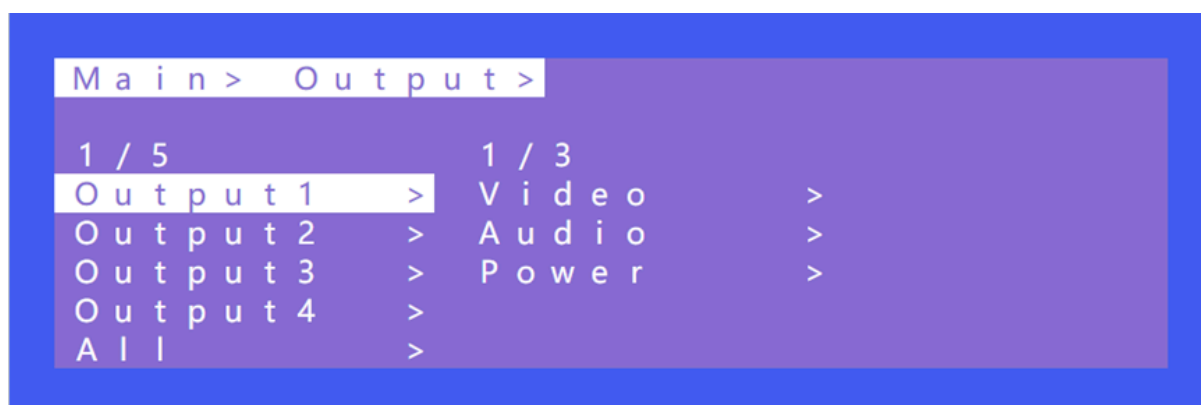Operation format: press the desired "output channel" and then press an "input channel."



The Main menu includes 5 Modes: Output, Input, Preset, Config, and Info.
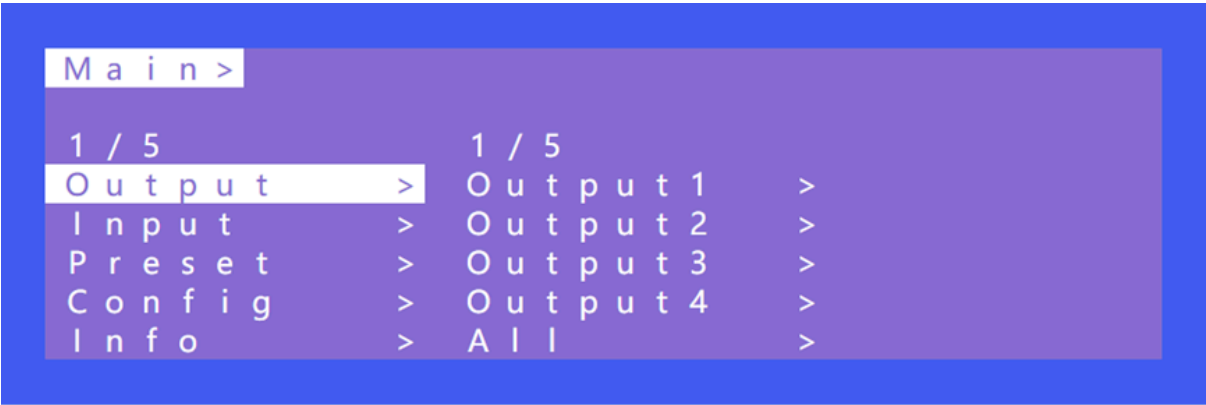
Output includes 9 sub-menus：output 1~8 & all, each channel with video, audio, and power options.

```
Main>  Output>

1 / 5              1 / 3
Output1      >   Video      >
Output2      >   Audio      >
Output3      >   Power      >
Output4      >
All          >
```

Video has 10 options：source, on/off, pattern, formart, genlock, mirror, coord, PIP, wall, image.

```
Main>  Output>  Output1>

1 / 3              1 / 10
Video        >   Source     >
Audio        >   Onoff      >
Power        >   Pattern    >
                 Format     >
                 Genlock    >
```
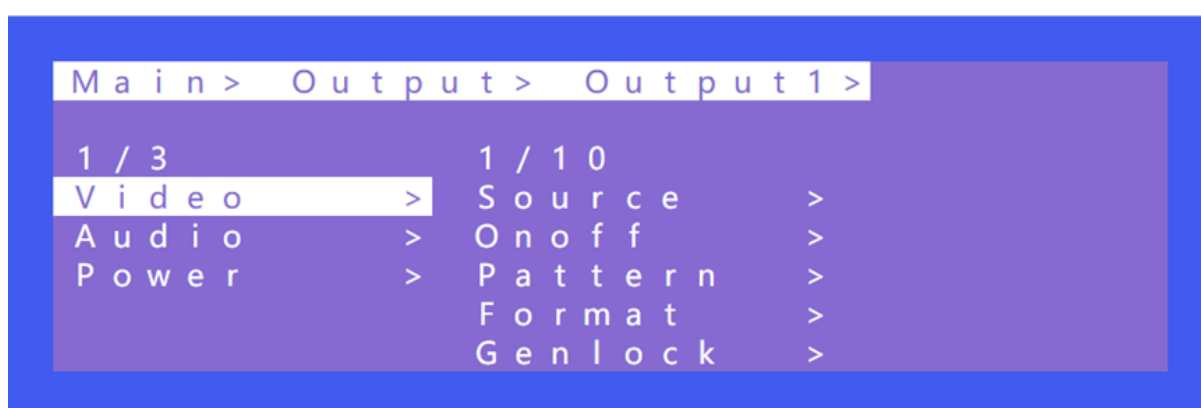
Audio has 4 options：HDMI on/off, HDMI SRC, DEC on/off, DEC SRC to control audio switching, turn on or off.

```
Main>  Output>  Output1>

2 / 3              1 / 4
Video        >   HDMI  On..>
Audio        >   HDMI  SRC  >
Power        >   DEC  Onoff>
                 DEC  SRC   >
```
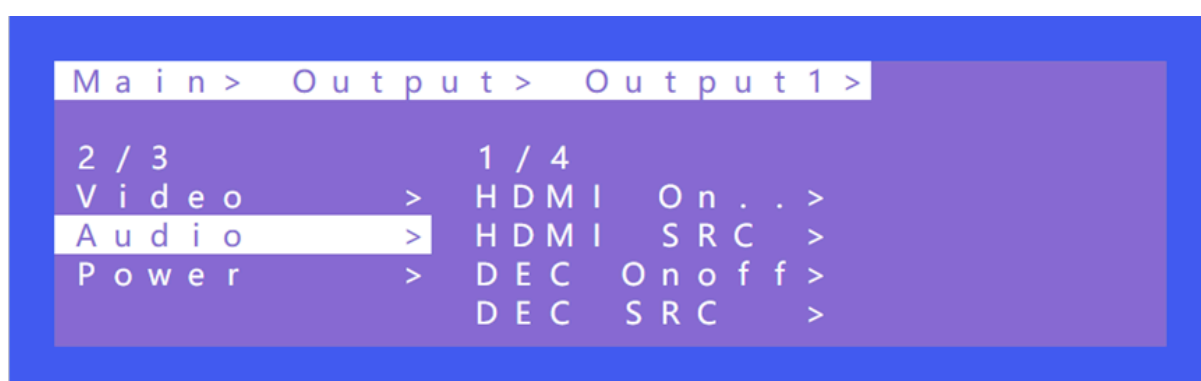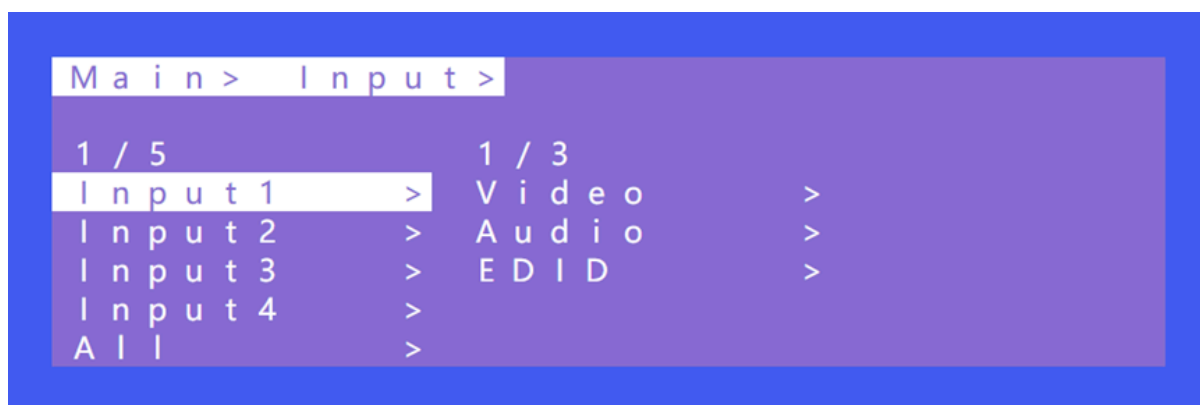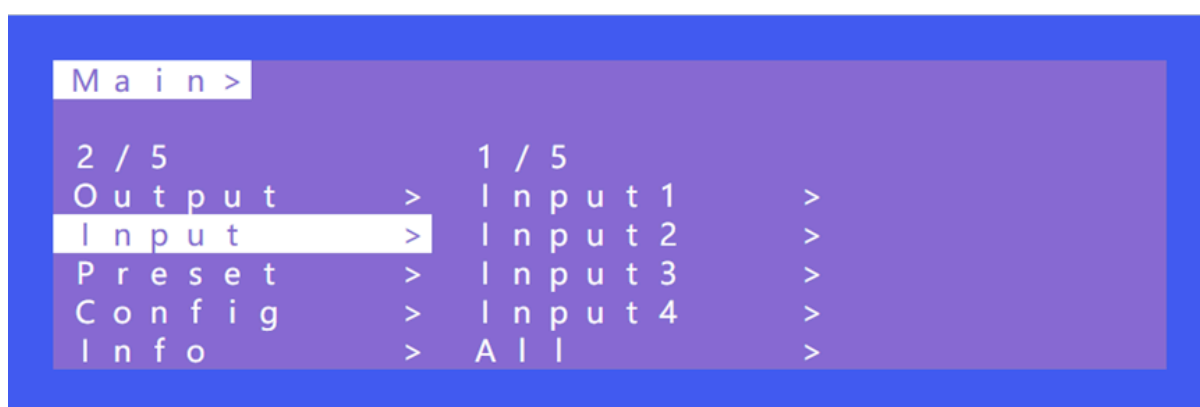
Power: Turns on or off the HDMI Output 5V.

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

3 / 3                 2 / 2
V i d e o          >  O f f
A u d i o          >  O n              @
P o w e r          >
```
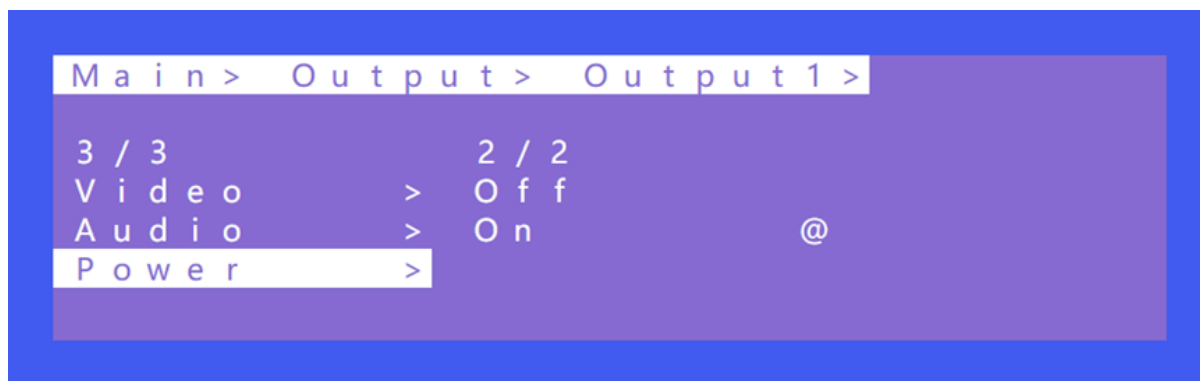
Input contains video, audio, and EDID options.

```
M a i n >

2 / 5                 1 / 5
O u t p u t        >  I n p u t 1       >
I n p u t          >  I n p u t 2       >
P r e s e t        >  I n p u t 3       >
C o n f i g        >  I n p u t 4       >
I n f o            >  A l l             >
```

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

1 / 5                 1 / 3
I n p u t 1        >  V i d e o         >
I n p u t 2        >  A u d i o         >
I n p u t 3        >  E D I D           >
I n p u t 4        >
A l l              >
```
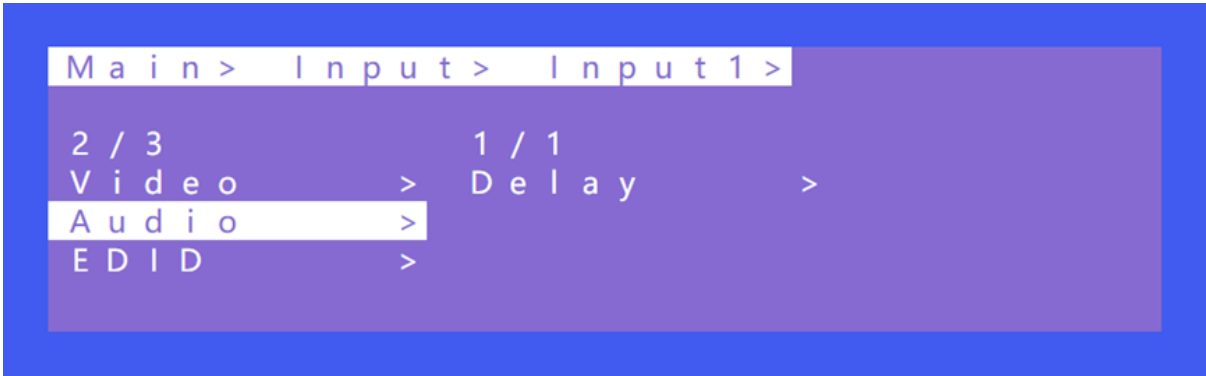
Video has on/off and Pattern options. Pattern is used to replace the picture of the signal with a static image.

```
Main >  Input >  Input1 >

1 / 3            1 / 2
Video      >    Onoff        >
Audio      >    Pattern      >
EDID       >
```
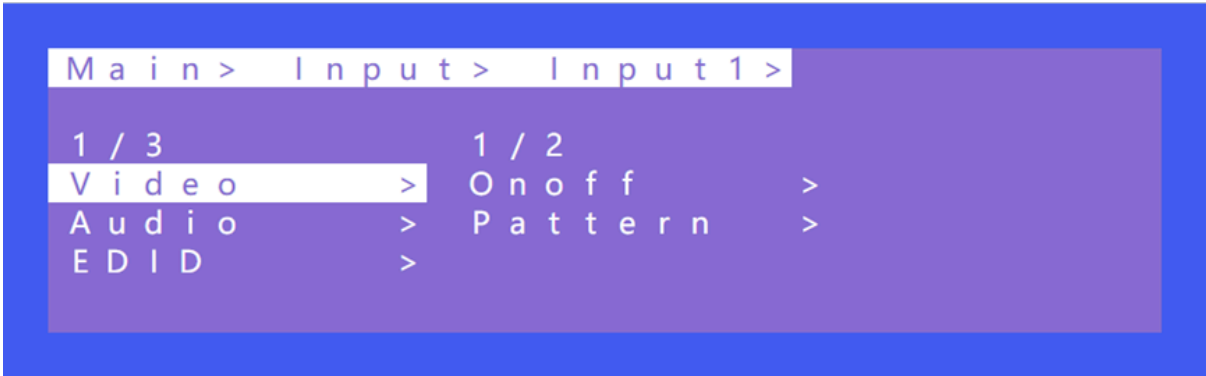
Audio delay range (0~50, auto), Default setting: auto

```
Main >  Input >  Input1 >

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

EDID includes Built-in EDID, User EDID, Copy EDID, Temp, Default setting is using: Default1

With Modify on and after copying the TVs EDID, the audio parameters are automatically changed to LPCM 2.0. If turned off, the copied EDID will not modify the audio parameters.

| Default1 | 4K60 444-LPCM: 2.0-192Khz | Default2 | 4K60 420-LPCM: 2.0-192Khz |
|----------|---------------------------|----------|---------------------------|
| Default3 | 4K30 444-LPCM: 2.0-192Khz | Default4 | 1080P120 444-LPCM: 2.0-192Khz |

```
Main >  Input >  Input1 >

3 / 3            1 / 2
Video      >    Copy         >
Audio      >    Modify   ..>
EDID       >
```

```
M a i n >   I n p u t >   I n p u t 1 >   E D I D >

1 / 2                     1 1 / 1 3
C o p y              >    U s e r 3
M o d i f y    . . >      U s e r 4
                         O u t p u t 1
                         O u t p u t 2
                         O u t p u t 3     @
```

```
M a i n >   I n p u t >   I n p u t 1 >   E D I D >

2 / 2                     2 / 2
C o p y              >    O f f
M o d i f y  a u >        O n               @
```

Preset can save the current video, audio, EDID, system settings, and supports 8 different scenes/presets. Presets can be modified and called using the web interface, RS-232 commands and the front panel. The default preset is consistent with the factory settings. There are 4 options in the Preset menu as follows:

- **Clear:** Remove the selected preset.
- **Save:** Stores the current preset (can be overwritten).
- **Call:** Activates the currently selected preset.
- **Demo:** Plays the demo according to the scenes sequence.

```
M a i n >

3 / 5                     1 / 4
O u t p u t          >    C l e a r         >
I n p u t            >    S a v e           >
P r e s e t          >    C a l l           >
C o n f i g          >    D e m o           >
I n f o              >
```

```
Main>  Preset>

2 / 4              2 / 2
Clear        >    Mode         >
Save         >    Scene        >
Call         >
Demo         >
```

```
Main>  Preset>  Clear>

2 / 2              1 / 9
Mode         >    Scene1       @
Scene        >    Scene2
                  Scene3
                  Scene4
                  Scene5
```

Demo：
Timer can set the demo's switching time
Select function for selecting the demo modes

```
Main>  Preset>   Demo>

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

```
Main>  Preset>   Demo>

2 / 2              1 / 27
Timer        >    S - P2P       >
Select       >    S - Input1    >
                  S - Input2    >
                  S - Input3    >
                  S - Input4    >
```
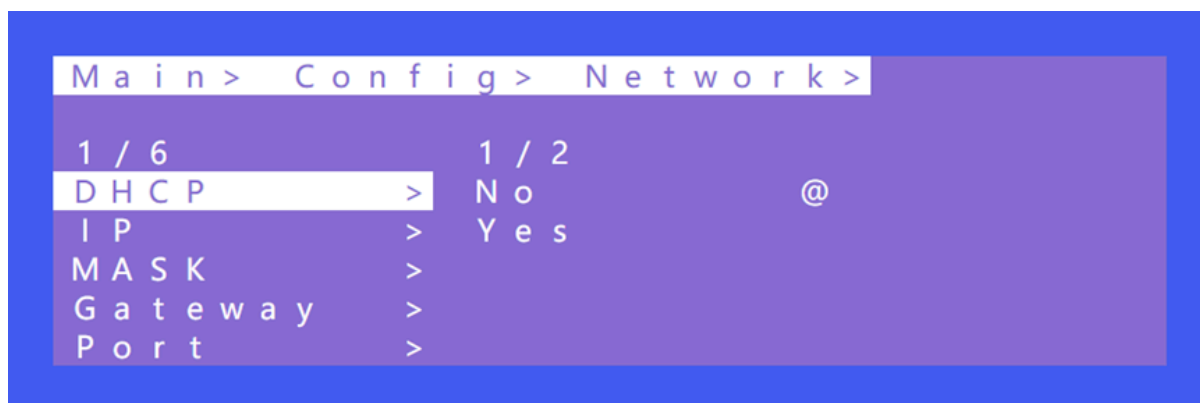
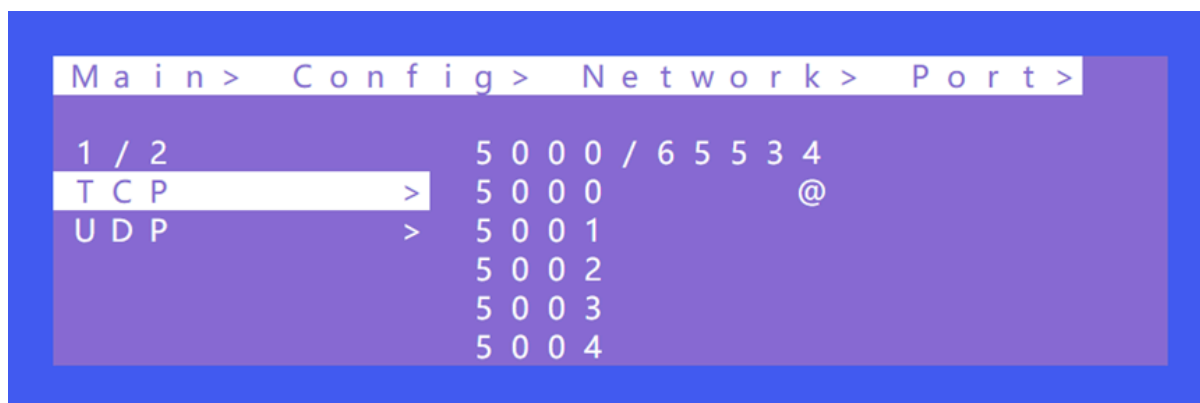Config contains the Network, RS-232, LCD, OSD, MENU, user EDID, and system setting pages.

```
Main>

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

Network contains options for DHCP, IP, mask, gateway, port, and Mac ID.

**Default IP : 192.168.1.200**

```
Main>  Config>  Network>

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

TCP/UDP default Port : TCP 5000, UDP 5001

```
Main>  Config>  Network>  Port>

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

```
. . . > >   N e t w o r k >   P o r t >   T C P >

5 0 0 0 / 6 5 5 3 4
5 0 0 0              @    D H C P : O f f
5 0 0 1                   I P     : 1 9 2 . 1 6 8 .    0 .   5 7
5 0 0 2                   M A S K : 2 5 5 . 2 5 5 . 2 5 5 .    0
5 0 0 3                   G W     : 1 9 2 . 1 6 8 .    0 .    1
5 0 0 4                   M A C   : 4 6 5 8 - 4 E 9 E - 0 A 6 B
```

```
M a i n >   C o n f i g >

2 / 7                 1 / 4
N e t w o r k     >   B a u d         >
R S - 2 3 2       >   D a t a         >
L C D             >   S t o p         >
O S D             >   P a r i t y      >
M e n u           >
```

```
M a i n >   C o n f i g >   R S - 2 3 2 >

1 / 4                 6 / 6
B a u d           >   9 6 0 0
D a t a           >   1 9 2 0 0
S t o p           >   3 8 4 0 0
P a r i t y        >   5 7 6 0 0
                      1 1 5 2 0 0       @
```

LCD contains settings for screen brightness levels and screen idle time off settings.

```
M a i n >   C o n f i g >

3 / 7                 1 / 2
N e t w o r k     >   B r i g h t      >
R S - 2 3 2       >   T i m e r        >
L C D             >
O S D             >
M e n u           >
```

```
Main>  Config>  LCD>

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

```
Main>  Config>  LCD>

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

There are 4 options in OSD: User, Time, Menu, and 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 the OSD display will be turned off. By default, User and time are infinite while menu and info are set to 30 seconds.

```
Main>  Config>

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

Timer is used to set the idle time before the system sends users back to the main menu (default is 30s).

"Select Run" is used to determine 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."

```
M a i n >   C o n f i g >

5 / 7                 1 / 2
N e t w o r k    >    T i m e r          >
R S - 2 3 2      >    S e l e c t R u n >
L C D            >
O S D            >
M e n u          >
```

```
M a i n >   C o n f i g >   M e n u >

1 / 2                 1 0 / 1 0
T i m e r        >    1   M
S e l e c t R u n >   1   M   3 0 S
                      2   M
                      3   M
                      E n d l e s s      @
```

```
M a i n >   C o n f i g >   M e n u >

2 / 2                 2 / 2
T i m e r        >    D i s a b l e
S e l e c t R u n >   E n a b l e      @
```

User EDID: Users can store the EDID information of a connected output display device in the connection matrix to user 1~4, which can be stored in default, output, 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            >
```

System Setting includes reboot, power, and factory. Reboot is used to restart the device. Power is used to put the device into sleep mode. Factory is used for factory data reset which returns the device to original factory settings.

```
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 indicates timed standby, Timed On indicates timed wake up, and Auto Sleep.

```
Main>  Config>  System>

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

Factory contains two options for factory reset.

Simple: Partially restores factory settings.

User: Restores all factory settings.

```
Main>  Config>  System>

3 / 3              1 / 2
Reboot       >   Simple      >
Power        >   User        >
Factory      >
```

Query device information including input, output, system, and log. The information can only be queried and cannot be set or changed.

Input: resolution information of the signal sources input.

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         >
```

## Video Wall Mode

1. Supports margin/bezel adjustments.
2. Supports seamless switching of the video wall (displays must have same resolution)
3. Support mirroring of displays in the video wall.
4. Supports multiple simultaneous video wall settings.

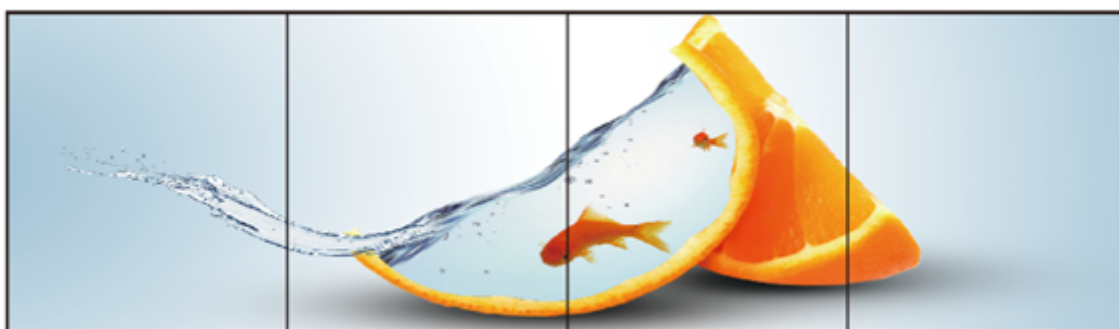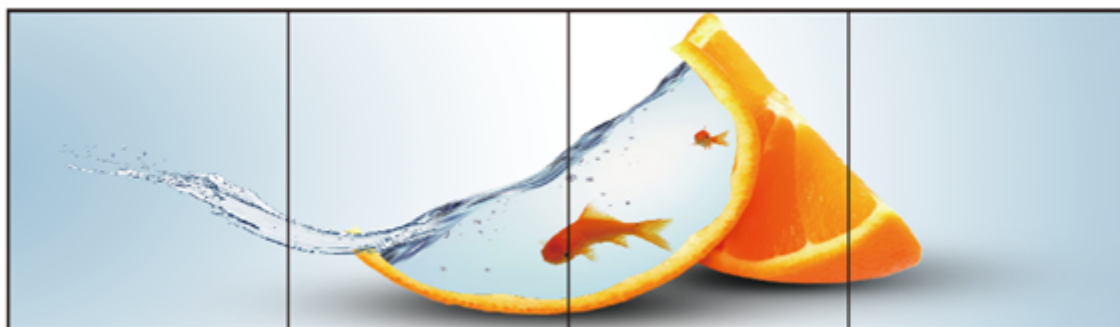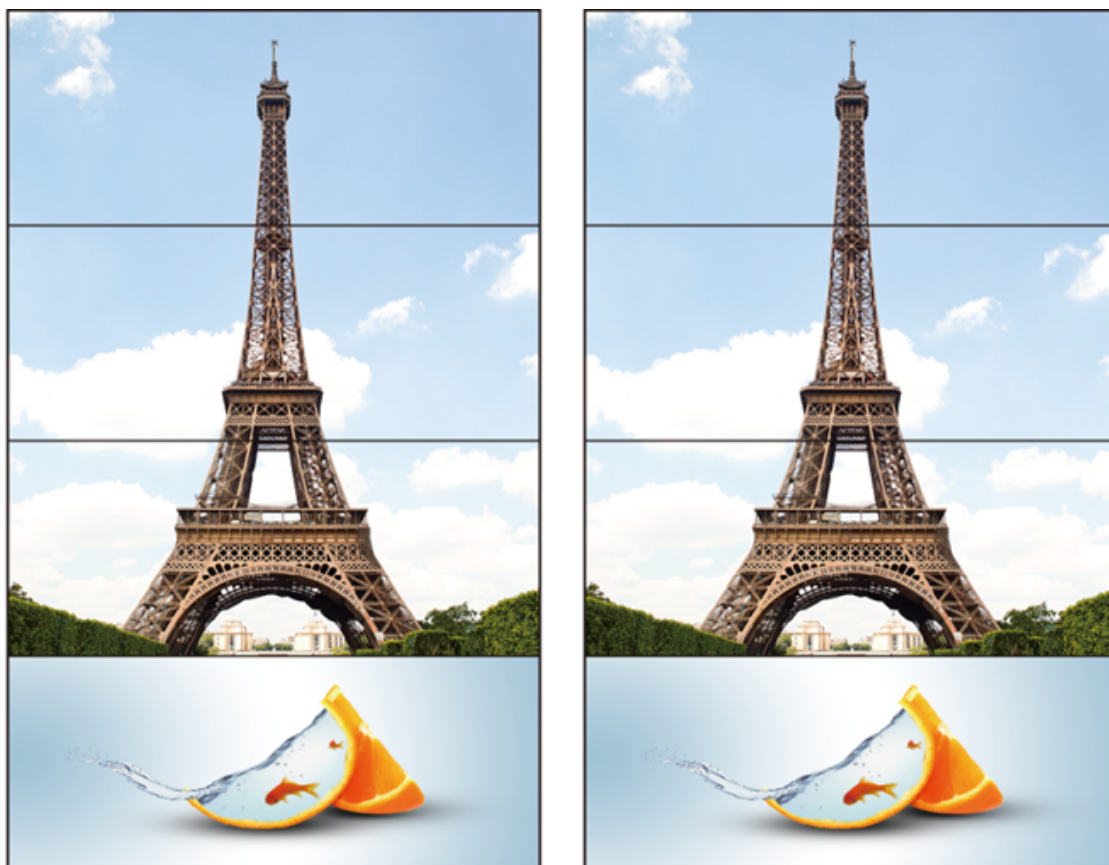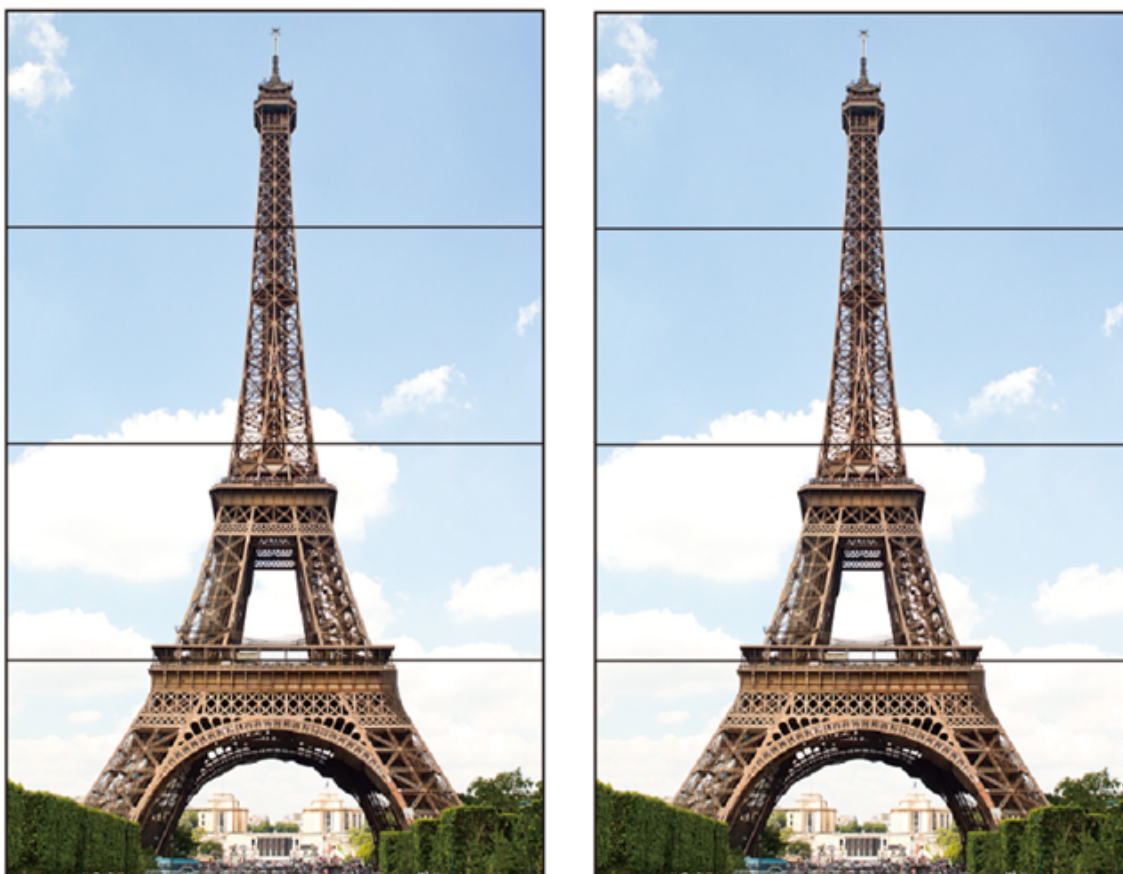Video wall configurations are as shown:
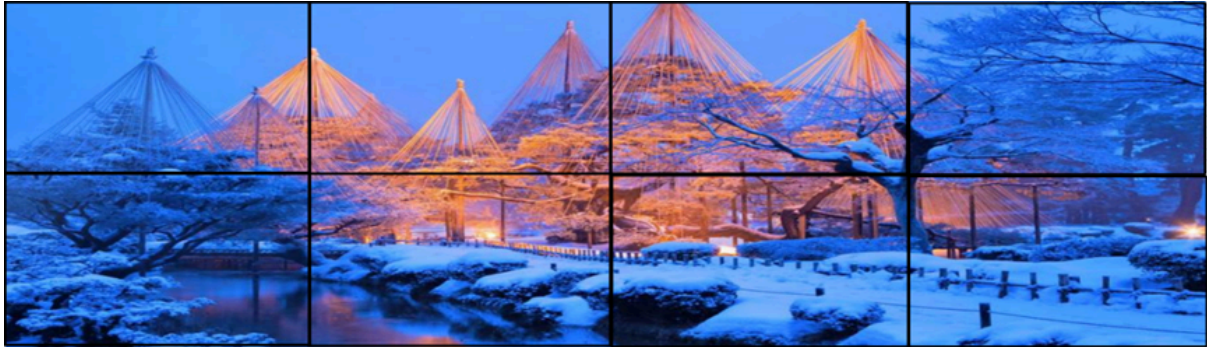


W-2x4
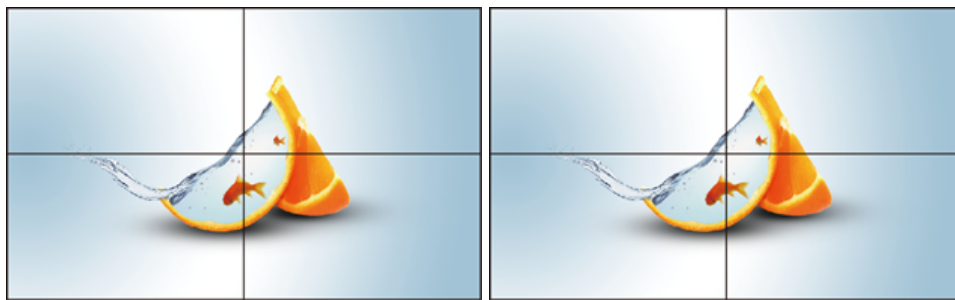


W-2x2
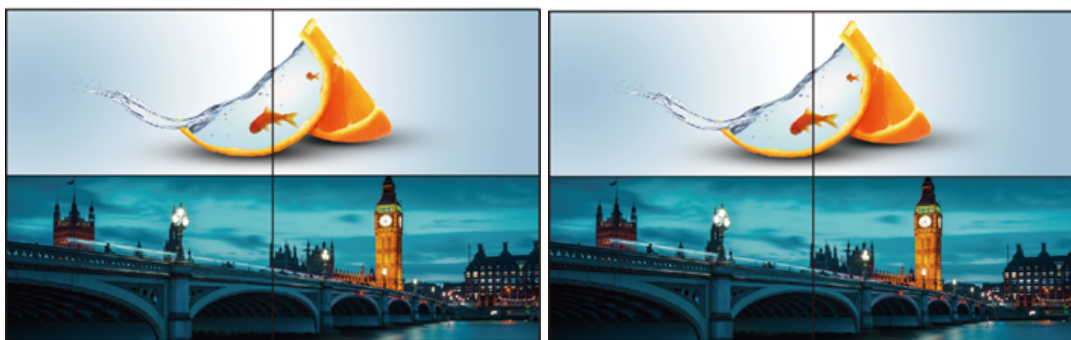


W-1x2
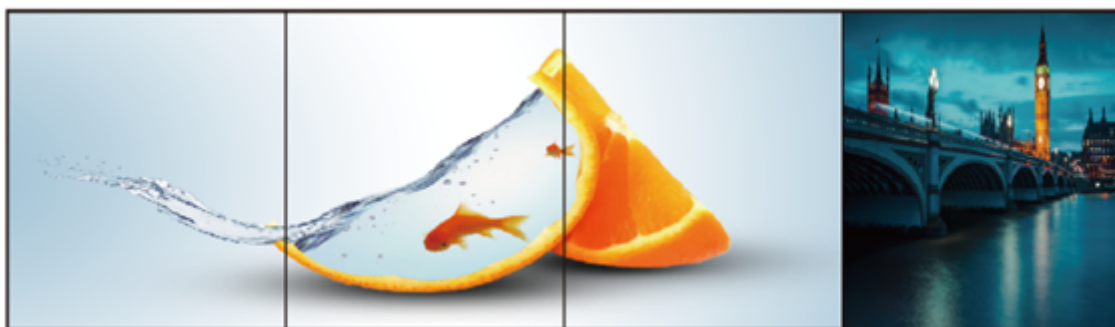
W-1x3





W-1x4

W-2x1 W-2x1



W-3x1

W-4x1

## Multi-Viewer Mode

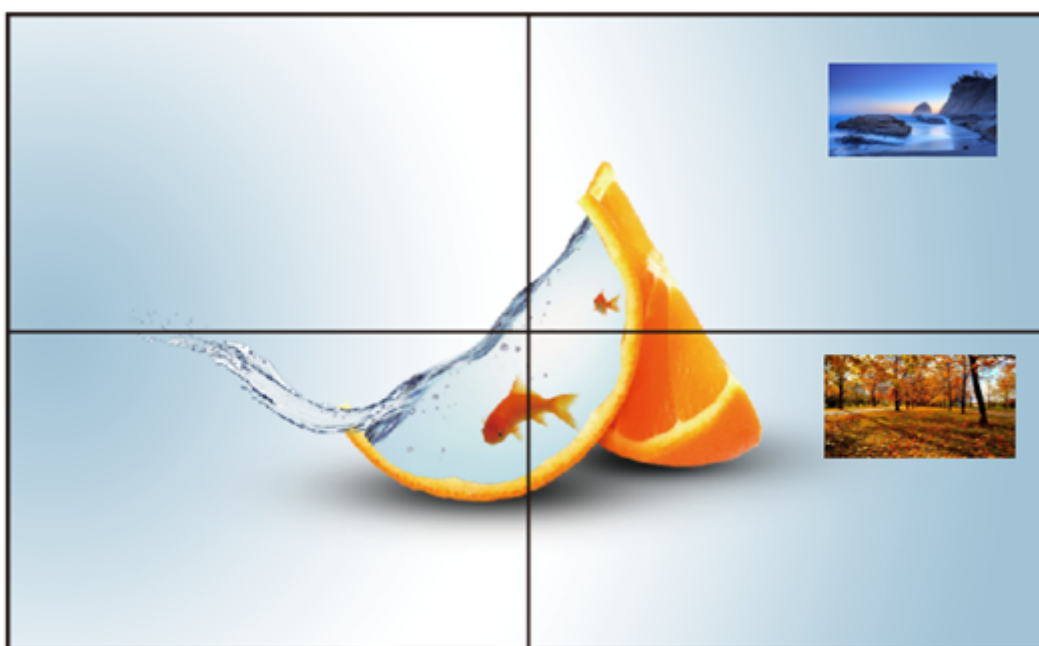There are 6 different modes when the Multi-Viewer mode is enabled as shown below:
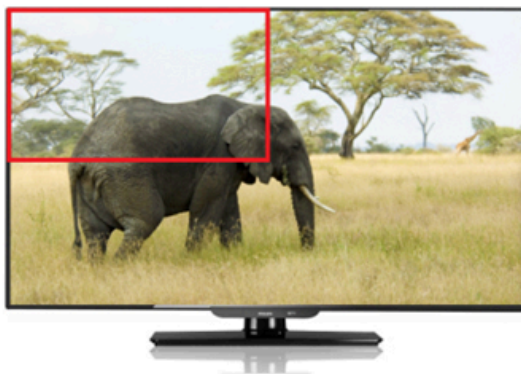


Mode 1

Mode 2



Mode 3

Mode 4



Mode 5

Mode 6

## 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

Changing coordinates is only supported in the on-screen display menu;
Default wall coordinates output 1 (0,0) output 2 (1,0) output 3 (0,1) output 4 (1,1);
Output 1 wall width=2 and height=2. Other outputs must be to auto.

If output 1 and output 2 are flipped your coordinates would be as follows:
Output 1 (1,0) output 2 (0,0) output 3 (0,1) output 4 (1,1);
Output 2 wall width=2 and height=2. Other outputs must be set to auto.

## Audio Description

By default the HDMI outputs support uncompressed audio PCM, LPCM 2.0, and SPDIF: 5.1.

The maximum sampling rate supports 192KHZ.

COPY EDID audio formats are forced into LCPM 2.0.



HDMI Source:

1. ENC1~8 indicates which HDMI outputs have selected the embedded audio.
2. HDMI1~8 indicates that HDMI outputs have selected another 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.

## Remote Control

⏻ : Standby or power on

🔇 : Mute button

⏮ : Return to upper 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
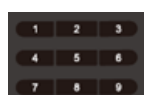
🔼 : Up

◀ : Menu

OK : OK

▶ : Enter

🔽 : Down

↺ : Return or exit

Back : Menu

When selecting Output,means Out1--out8

When selecting Input, means In1--In8

🗔 : Preset

0 : (N/A)

↤ : Point to Point 1-1, 2-2, 3-3, 4-4...

# HDCP

| HDMI Output | Device1 HDCP2.2/1.4 | Device2 HDCP1.4 | Device3 NO HDCP |
|---|---|---|---|
| HDCP2.2 | HDCP2.2 | / | No signal |
| HDCP1.4 | HDCP1.4 | HDCP1.4 | No signal |
| Off HDCP | NO HDCP | NO HDCP | NO HDCP |

# Factory Default Setting

1) Video：P-to-P, 1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8

2) Audio：Audio Embedding turn off, HDMI Output audio on, Extraction on

3) Network：

- Static IP address
- 192.168.1.200
- Sub net：255.255.255.000
- Gateway：192.168.1.1
- Port：TCP: 5000, UDP:5001, Telnet:23
- Web GUI & Telnet:
- Login: admin
- Password: admin
- MAC Address (cannot be modified)

## 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 |

## Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

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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