

BG-4K-VP44PRO

4x4 4K UHD Seamless HDMI Matrix Switcher/Video Wall Processor/ MultiViewer Over Cat5e/6/7 Kit with 4 Receivers

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-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	 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. Long press any OUTPUT button to highlight/select all outputs at once. Press the INPUT # button you would like to display and the highlighted/selected output(s) will change to the selected input #. 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	 Press the PRESET button to enter the preset call menu. Use the UP and DOWN buttons to highlight one of the 26 preset modes 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 $1 \times 4 \sim 4 \times 4$ and can switch any input signal to any of the outputs.

Operation: "output channel" + "input channel"

Outp	u t	1	2	3	4
lnpu	t	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	>
lnput	>	Output2	>
Preset	>	Output3	>
Config	>	Output4	>
Info	>	AII	>



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.



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.



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)





2) Onoff

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



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.

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0	n	0	f	f					>		W	h	i	t	е								
Ρ	а	t	t	е	r	n			>		С	r	0	s	s								
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G	e	n	1	0	c	k			>		C	0	1	0	r								

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.

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	R	e	S	0	1	u	t	i	0	>	D	e	f	a	u		t +	1		@									
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	R	а	n	g						>	D	е	f	а	u	I.	t	4											
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	١.,	÷	J.	>	>		F	0	r	m a	t	>		R	е	s	0	1	u	t	i	0	n	>					
	2	7		-																									
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	D	e	f	a	u	1	t	4																					
	0	5	e	1	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



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6/9									1	/	2														
Ono) f	f					>		X									>							
Pat	t	е	r	n			>		Y									>							
For	m	а	t				>																		
Gen	1	0	С	k			>																		
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Win	d	0	W	S																					
CRC) P																								
ZOC) M																								



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



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CRO) P	Y	0		>	1											
CRO	ΟP	X	1		>	2											
CRO) P	Y	1		>	3											
ZOC	D M	X	0		>	4											
	. >	>	A		>	V	i	d	e	0 >	>	С	0 0	r	d	>	
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9 / · Z O Q Z O Q	. > 1 0 D M D M	> Y X	A 0 1		>	V 1 0 1	i /	d 1	e 0	<mark>0</mark> > 0 1		С	<mark>0 0</mark>	r	d	~	
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9 / ⁻ Z O (Z O (Z O (G a j	. > 1 0 0 M 0 M	> Y X Y	A 0 1 1		> > > > > > > >	V 1 0 1 2 3	i /	d 1	e 0	0 1		С	<mark>0 0</mark>	r	d	~	

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.



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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.

Μ	а	i	n	>		0	u	t	р	u	t	>		A	I	1	>		V	i	d	е	0	>	
9	1	9									1	1	4												
G	е	n	I	0	С	k			>		В	r	i	g	h	t	n			>					
Μ	i	r	r	0	r				>		С	0	n	t	r	а	s	t		>					
С	0	0	r	d					>		S	а	t	u	r	а	t			>					
Ρ	1	Ρ							>		Н	u	е							>					
1	m	а	g	е					>																

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.

Μ	а	i	n	>	0	u	t	рu	t	>		0	u	t	р	u	t	1	>
2	/	3							1	1	4								
V	i	d	е	0				>	Н	D	Μ			0	n			>	
А	u	d	i	0				>	Н	D	Μ	1		S	R	С		>	
Ρ	0	w	е	r				>	D	Ε	С		0	n	0	f	f	>	
									D	Ε	С		S	R	С			>	



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

M	а	1	n	>		0	u	t	р	u	t	>		0	u	t	р	u	t	1	>	A	u	d	1	0	>
1	1	4									2	1	2														
Н	D	Μ	1		0	n	0	f	>		0	f	f														
Н	D	Μ	1		S	R	С		>		0	n								@							
D	Ε	С		0	n	0	f	f	>																		
D	Ε	С		S	R	С			>																		

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.



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.

Μ	а	i	n	>		0	u	t	р	u	t	>		0	u	t	р	u	t	1	>	A	U	1 (i k	(>	•
4	1	4									5	1	5															
Н	D	Μ	I		0	n			>		Н	D	М	I	1													
Н	D	Μ	1		S	R	С		>		Н	D	Μ	1	2													
D	Ε	С		0	n	0	f	f	>		Н	D	Μ	I	3													
D	E	С		S	R	С			>		Н	D	Μ	I	4													
											Α	u	t	0		Н	D	Μ	I	@								

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

3/3 2/2 Video > Off Audio > On @
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.

Mains		
IVI a T TI >		
2 / 5	1 / 5	
Output	> Input1	>
lnput	> Input2	>
Preset	> Input3	>
Config	> Input4	>
lnfo	> AII	>
lnfo	> A I I	>
lnfo	> A I I	
Info Main> In	> AII	
Info Main> In	> AII put>	>
lnfo Main≻ ln 1/5	> AII put> 1/3	
lnfo Main≻ ln <mark>1/5</mark> lnput1	> AII put> 1/3 > Video	>
lnfo Main≻ ln 1/5 lnput1 lnput2	> AII put> 1/3 > Video > Audio	>
lnfo Main> ln 1/5 lnput1 lnput2 lnput3_	> AII put> 1/3 > Video > Audio > EDID	>
Info Main> In 1/5 Input1 Input2 Input3 Input4	> AII put> 1/3 > Video > Audio > EDID >	>

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.

Ма	i	n	>	1	n	р	u	t	>		T	n	р	u	t	1	>
1/3	3								1	7	2						
Vid	d	е	0				>		0	n	0	f	f				
Aud	d	i	0				>		Ρ	а	t	t	е	r	n		
ED	1	D					>										

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.



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

Main 3/3 Vide Audi EDID	> Input> I 2/1 o > Def o > Def Def Def Use	nput1> 3 ault1 ault2 ault3 ault4 r1
Main 2/13 Defa Defa Defa User	<mark>> Input> I</mark> ult1 Nam u <mark>lt2 @</mark> FMT ult3 Col ult4 Aud 1	nput1> EDID> e : X X X 1 2 3 4 . : 4 0 9 6 x 2 1 6 0 P 6 0 or : 4 2 0 H L G i o : L P C M - 2 1 9 2 K
Main 13/1 Outp Outp Outp Outp Temp	> Input> I 3 ut1 Nam ut2 ut3 ut4	nput1> EDID> e : Invalid

Example: Switching Default1 to input1:

- 1. Select "EDID" in the main menu and press "ENTER"
- 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.

Main>		
3 / 5	1 / 5	
Output	> Clear	>
lnput	> Save	>
Preset	> Call	>
Config	> Cascade	>
lnfo	> Demo	>

Operations:

 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.
 Save preset: select "Save" in Preset and select "Mode" or "Scene" to save in "Scene" or "P2P"

Call preset: Select "Call" in Preset, then select a saved preset to complete the operation.
 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>	Prese	t >	C	е	a r	>	
1 / 2		15,	127				
Mode	>	W - 2	2 x 1				
Scene	>	W - 2	2 x 1		2 x	1	
		W - 3	3 x 1				
		W - 4	4 x 1				
				1		0	
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Main>	Prese	t >		e	a r	>	
Main> 2/2	Prese	t >	C	e	a r	>	
Main> 2/2 Mode	Prese >	t > 1 / 9 S c e	C I 9 e n e	e 1	a r	> @	
Main> 2/2 Mode Scene	Prese > >	t > 1 / 9 S c e S c e	C I 9 e n e e n e	e 1 2	a r	© > @	
Main> 2/2 Mode Scene	Prese > >	t > 1 / 9 S c e S c e S c e	C I e n e e n e	e 1 2 3	a r	» »	
Main> 2/2 Mode Scene	Prese > >	t > 1 / 9 S c e S c e S c e	C I e n e e n e e n e e n e	e 1 2 3 4	a r	» @	

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).

1/5	
4/3	1 / 3
Clear >	H_NUM >
Save >	V_NUM >
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.

Μ	а	i	n	>		Ρ	r	е	s	e	t	>		D	e	m	0	>	
	1	2									1	0	1	1	0				
	i.	m	е	r					>		1		M						
	e	1	e	c	t				>		1 2 7		MM		3	0	S		
											E	n	d	1	e	s	s		
1	a	i	n	>		Р	r	e	5	P	t	>		D	e	m	0	>	
M	a	i	n	>		Ρ	r	е	s	е	t	>	2	D	е	m	0	>	
И 2 Т	a / i	i 2 m	n	>		Ρ	r	e	s >	e	t 1 S	> / -	2 P	D 7 2	e	m	0	>	
// 2 5	a / i	i 2 m	n e	> r c	t	Ρ	r	e	s > >	e	t 1 S S	> /	2 P I	D 7 2 n	e P P	m	o t	>	
M 2 T S	a / i	i 2 m 1	n e	> r c	ť	Р	r	e	s > >	e	t 1 5 5 5	× /	2 P I I	D 7 2 n	e P P	m u u	o t t	> 1 2	
M 2 T S	a / i	i 2 m 	n e	> r c	t	P	r	e	s > >	e	t 1 5 5 5 5	× / · · · ·	2 P I I	D 7 2 n n	e P p p	m u u u	o t t t	> 1 2 3	

Config

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

Main>			
4 / 5		1 / 7	
Output	>	Network	>
Input	>	R S - 2 3 2	>
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

М	а	i	n	>		С	0	n	f	i	g	>		N	e	t	W	0	r	k	>									
1	/ H	6	P						>		1 N	/	2							6	,									
I M	P	5	ĸ						> >		Y	e	s																	
GP	a	t r	et	w	а	у			~ ~ ~																					
М	a	i	n	>		С	0	n	f	i	g	>		Ν	e	t	W	0	r	k	>		D	Η	С	Ρ	>			
1	7	2											6			~														
Y	e	S							@		D I M	H P A	s	Р К		1 2	1 9 5	1 2 5		12	65	8 5		2	5	15		1	6 9	9
											1					3	X			W.		100		1000		100			3	

Main> Config> Network>	
2/6 1/4 DHCP > Part1 > IP > Part2 > MASK > Part3 > Gateway > Part4 > Port >	
Main> Config> Network>	I P >
1/4 193/256 Part1 > Part2 > Part3 > Part4 > 192 @	
Main> Config> Network>	Porta
	POTEZ
1 / 2 T C P U D P 5 0 0 0 / 6 5 5 3 4 5 0 0 0 5 0 0 1 5 0 0 2 5 0 0 3 5 0 0 4	
1 / 2 T C P U D P >> Network> Port> T C	P >

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.

Address: 830 National Drive #140, Sacramento, CA 95834, USA • Tel: +1(888)499-9906 • Email: support@bzbgear.com 28



2) RS-232

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

IVI	a		n	>	(- 0	n	T	1	9	-	1										
2	1	7								1	1	4										
Ň	é	t	w	0	r I			>		B	a	u	d						>			
R	S	-	2	3	2			>	Ť.	D	a	t	a						>			
1	C	D	-					>		s	t	0	D						>			
0	s	D						>		P	a	r	i	t	v				>			
M	e	n	u					>														
						_				_		_		_		_				 	 	
M	а	i	n	>	(0	n	f	i	g	>		R	S		2	3	2	>	_		
M 1	a /	i 4	n	>	(0	n	f	i	g 1	>	6	R	S	-	2	3	2	>			
M 1 B	a / a	i 4 u	n	>	(0	n	f >	i	g 1 1	> / 1	65	R 2	S 0	- 0	2	3	2	>			
M 1 B	a / a	i 4 u t	n d	>	(0	n	f > >	i	g 1 1 5	> / 1 7	6 5 6	R 2 0	S 0 0	- 0	2	3	2	>			
M 1 B S	a / a t	i 4 u t o	n d a p	>	(0	n	f > > >	i	g 1 1 5 3	> /178	6 5 4	R 2 0 0	S 0 0	-	2	3	2	>			
M 1 B D S P	a / a t a	i 4 u t o r	n d a p i	> t	(5 0	n	f > > >	i	9 1 5 3	> /1 7 8 9	65642	R 2 0 0 0	S 0 0 0 0	-	2	3	2	<mark>></mark> @			

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> Cor	fig>	
3 / 7 Network R S - 2 3 2 L C D O S D	1/2 > Bright > Timer >	> >
Menu	>	

Main> Conf	ig> LCD>	
2/2 Bright > Timer >	6 / 1 1 3 0 S 1 M 1 M 3 0 S 2 M 3 M	@
Maine Conf		
Marn> Conr	rg / LCD/	
1 / 2	9/9	
1/2 Bright >	9 / 9 4	
1/2 Bright > Timer >	9 / 9 4 5	
1/2 Bright > Timer >	9 / 9 4 5 6 7	
1/2 Bright > Timer >	9 / 9 4 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

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"



Μ	а	i	n	>	_	С	0	n	f	i	g	>		Μ	е	n	u	>
1	1	2									1	0	1	1	0			
Т	i	m	е	r					>	2	1		М					
S	е	1	е	С	t	R	u	n	>		1		Μ		3	0	S	
											2		Μ					
											3		M					
											E	n	d		е	S	S	

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> (Confi	g >		
6 / 7		1 / 5		
LCD	>	User1	>	
OSD	>	User 2	>	
Menu	>	User 3	>	
User ED	DID>	User4	>	
System	>	AII	>	

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> Conf	i a >	
7 / 7	1/3	
L C D >	Reboot	>
	Fower	~
User EDID>	гастоту	
System >		





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.



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



Remote Control



: 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 De	fault 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.

Туре	Format	Value	Regulation
Command head	#cmd	without	
Explain	Can be used to search comma open command format fields	nd,after receiving command, th	e system will feedback all
	#cmd		
Example1	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





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)



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:
- 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"

che di					
You can get IP settings assigne this capability. Otherwise, you for the appropriate IP settings.	ed automatical need to ask yo	y if you our net	ur net work	work	supports histrator
Obtain an IP address auto	omatically				
Use the following IP addre	255:				
IP address:	192	. 168	. 1	. 2	
Subnet mask:	255	. 255	. 255	. 0	
Default gateway:	1			¥.	
Obtain DNS server addres	is automatical	v			
Use the following DNS ser	ver acdresses				
Preferred DNS server:		÷	×	¥.	
Alternate DNS server:	[]		1	¥.	
Valida:e settings upon ex	dt		[Ad	anced



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)

BZB GEAR	®
admin	
•••••	
Login	

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.

					Ð	Log Out
Input Stat	tus					
	Connected	Resolution	Color	Audio	HDCP	
МК	\checkmark	3840×2160P 59.94	4:2:2 8bit SMPTE	XXX-2 48K 24bit	HDCP2.2	
Bluray	\checkmark	4096×2160P 60	4:2:0 8bit SDR	XXX-2 44.1K 24bit	None	
bzbgear	\checkmark	4096×2160P 60	4:2:0 8bit SDR	XXX-2 44.1K 24bit	None	
animais	\checkmark	3840×2160P 59.94	4:2:2 8bit SMPTE	XXX-2 48K 24bit	HDCP2.2	
Output St	Connected	Resolu	tion	Color	Audio	
TV 1	×	×		×	×	
TV 2	×	×		×	×	
TV 3	×	×		×	×	
TV 4	×	×		×	×	
Firmware	Version					
MCU Version:	V0.0.8					
HTML Version:	V0.0.6					

_	
	6
	J

Input

■ Status	Input							
	Input	Edit Nan	ne	Video	Audio Delay(ms)		Copy EDID	From
	In 1	МК		On Off	- Auto +	Default 1:	4096x2160P@60	-444 HDR:None LPC \sim
	In 2	Bluray		On Off	- Auto +	Default 1:	4096x2160P@60	-444 HDR:None LPC \sim
🕒 Preset	In 3	bzbgea	r	On Off	- Auto +	Default 1:	4096x2160P@60	-444 HDR:None LPC 🗸
	In 4	animals		On Off	- Auto +	Default 1:	4096x2160P@60	-444 HDR:None LPC 🗸
	Сору	EDID From	Default 1:40	96x2160P@60	9-444 HDR:None LI ✓	to	User 1 🗸	Set
	Select Cu	stom EDID File	Browse			to	User 1 🗸	Upload

- 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

Default1:4096x2160P@60-444 HDR:HLG LPCM:2.0 XXX1234
Default2:4096x2160P@60-420 HDR:HLG LPCM:2.0 XXX1234
Default3:4096x2160P@30-444 HDR:HLG LPCM:2.0 XXX1234
Default4:1920x1080P@120-444 HDR:HLG LPCM:2.0 XXX1234
User1:1920x1080P@60-444 HDR:None ERR:ERR SAM0D1A
User2:4096x2160P@60-444 HDR:HLG LPCM:2.0 XXX1234
User3:4096x2160P@60-444 HDR:HLG LPCM:2.0 XXX1234
User4:4096x2160P@60-444 HDR:HLG LPCM:2.0 XXX1234
Output1:1920x1080P@60-444 HDR:None ERR:ERR SAM0D1A
Output2:Invalid
Output3:Invalid
Output4:Invalid
Temp1:Invalid

5. Copy EDID of sink to User1~4

Copy EDID From	Default 1:4096x2160P@60-444 HDR:None L 🗸	to	User 1 🗸	Set
----------------	--	----	----------	-----

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.

Select Custom EDID File	Browse	to	User 1 🗸	Upload



Output Menu

E	Status	Outpu	t							
	Input	Output	Edit Name	Video	HDMI Audio	Audio Source	Audio Extraction	Extraction Source	Resolution	
	Output	Out 1	TV 1	On Off	On Off	Audio Follow 🗸	On Off	Audio Follow 🗸	4K60	~
	Matrix	Out 2	TV 2	On Off	On Off	Audio Follow 🗸	On Off	Audio Follow 🗸	4K60	\sim
Ę	Preset	Out 3	TV 3	On Off	On Off	Audio Follow 🗸	On Off	Audio Follow 🗸	4K60	~
	Advanced	Out 4	TV 4	On Off	On Off	Audio Follow \checkmark	On Off	Audio Follow 🗸	4K60	~
	System	All				Audio Follow 🗸		Audio Follow \checkmark	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
- 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

2

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.

🗐 Status	Matrix				
→] Input		МК	Bluray	bzbgear	animals
[→ Output	TV 1	МК	Bluray	bzbgear	animals
🆽 Matrix	TV 2	МК	Bluray	bzbgear	animals
🕒 Preset	TV 3	МК	Bluray	bzbgear	animals
Advanced	TV 4	МК	Bluray	bzbgear	animals
ø [‡] System	All	МК	Bluray	bzbgear	animals

Preset Menu

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

🗐 Status	Preset					
→] Input	Mode	Preset Selection	Edit Name	Clear	Save	Call
[→ Output	Matrix	Default (Point-to-Pi 🗸	Default	Clear	Save	Call
🆽 Matrix	Video Wall	2x2 🗸	2x2	Clear	Save	Call
🕒 Preset	Multiview	2x2 🗸	2x2	Clear	Save	Call
Advanced	Scene	1 ~	1	Clear	Save	Call
会: System						

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

	Adva	nced									
	Output	PIP	Crop-X0	Crop-Y0	Crop-X1	Crop-Y1	Zoom-X0	Zoom-Y0	Zoom-X1	Zoom-Y1	Confirm
[→ Output	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
🕒 Preset	TV 3	On Off	0.00%	0.00%	100.00%	100.00%	0.00%	50.00%	50.00%	100.00%	Apply
Advanced	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
	Ga	Gap X		0.00%			0.00%		0.00%	C).00%
	Ga	ip Y	0.00	%	0.00%		0.00%		0.00%	C).00%

- 1. PIP On/Off can turn picture in picture on or off on the selected display.
- 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-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

Ē Status	Network Settin	gs				
) Input	Mac Address	46:58:4E:95:72:66				
[-→ Output	IP Address	192.168.30.237				
🆽 Matrix	Subnat Mask	255 255 255 0				
🕞 Preset		200.200.200.0				
Advanced	Gateway	192.168.30.1				
⊜ ≸ System	DHCP	On Off				
	TCP Port	5000				
		Apply				
	Account Manag	Account Management				
	Username					
	New Password					
	Confirm Password					
		Apply				
	System Manag	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.



Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (<u>bzbgear.com/support</u>) for helpful information and tips regarding our products. Here you will find our Knowledge Base (<u>bzbgear.com/knowledge-base</u>) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (<u>voutube.com/c/BZBTVchannel</u>), 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:

<u>Phone</u>	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 <u>bzbgear.com/warranty.</u>

For questions, please call 1.888.499.9906 or email <u>support@bzbgear.com</u>.

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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