

BG-UHD-1616M

**16X16 4K UHD 18Gbps HDMI Matrix Switcher with Advanced EDID,
HDMI Downscaling & CEC Support**

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-UHD-1616M is an 18Gbps 16x16 HDMI Matrix that supports video resolutions up to 4K2K@60Hz YUV 4:4:4 and multi-channel digital audio from 16 HDMI sources to 16 HDMI displays. Audio can be extracted to digital coaxial and is supported for each of the HDMI output ports.

While the HDMI output ARC function is enabled, the ARC audio from HDMI display devices will be extracted to coaxial audio output. Each HDMI output of this 16x16 HDMI Matrix supports 4K2K to 1080P downscaling independently. Control via the front panel buttons, the included IR remote, RS-232, LAN, and Web GUI allows users to easily manage the matrix.

Features

- HDMI 2.0b, HDCP 2.2/1.x, and DVI 1.0 compliant
- Video resolution up to 4K2K@60Hz (YUV 4:4:4) on all HDMI ports
- 18Gbps of video bandwidth
- HDR, HDR10, HDR10+, Dolby Vision, and HLG
- 4K->1080P downscaling available for each output
- HDMI audio pass-through of up to 7.1CH HD audio (LPCM, Dolby TrueHD, and DTS-HD Master Audio)
- Audio extraction via digital coax
- ARC, CEC, and smart EDID management
- 1U rack mounted design with front panel OLED display
- Control via the front panel buttons, included IR remote, RS-232, LAN, and Web GUI

Packing List

- 1 x 18Gbps 16x16 HDMI Matrix
- 1 x RS-232 Cable (1.5m Male-Female)
- 1 x 24V/3.75A Power Adapter
- 2 x Mounting Ear
- 1 x IR Remote
- 1 x User Manual



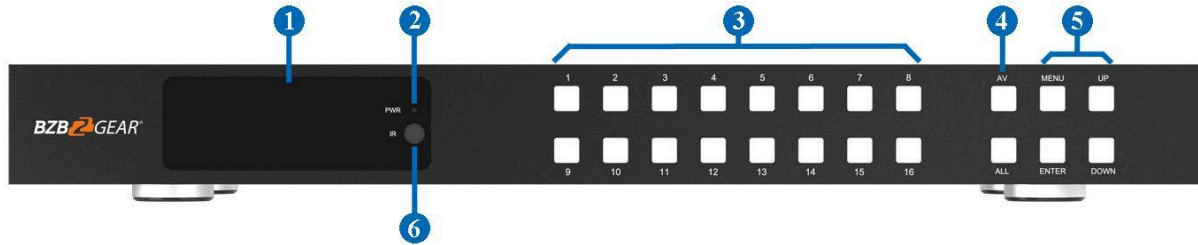
Specifications

Technical			
HDMI Compliance	HDMI 2.0b		
HDCP Compliance	HDCP 2.2/1.x		
Video Bandwidth	18Gbps		
Video Resolution	Up to 4K2K@60Hz (4:4:4)		
Color Space	RGB, YCbCr 4:4:4/4:2:2/4:2:0		
Color Depth	8-bit, 10-bit, 12-bit		
HDMI Audio Formats (Pass-through)	LPCM 2/5.1/7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X		
Coax Audio Formats	LPCM 2.0, Dolby Digital / Plus, DTS 5.1		
HDR formats	HDR10, HDR10+, Dolby Vision, HLG		
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)		
Connection			
Input Ports	16× HDMI Type A [19-pin female]		
Output Ports	16× HDMI Type A [19-pin female] 16× Coax Audio (RCA)		
Control Ports	1× TCP/IP [RJ45] 1× RS-232 [D-Sub 9]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	440mm (W)×200mm (D)×44mm (H)		
Weight	3.1kg		
Power Supply	Input: AC 100 - 240V 50/60Hz, Output: DC 24V/3.75A (US/EU standard, CE/FCC/UL certified)		
Power Consumption	76.8W		
Operating Temperature	-10°C ~ 45°C / 14°F ~ 113°F		
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F		
Relative Humidity	20~90% RH (non-condensing)		
Resolution / Cable length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M
The use of "Premium High-Speed HDMI" cable is highly recommended.			



Operation Controls and Functions

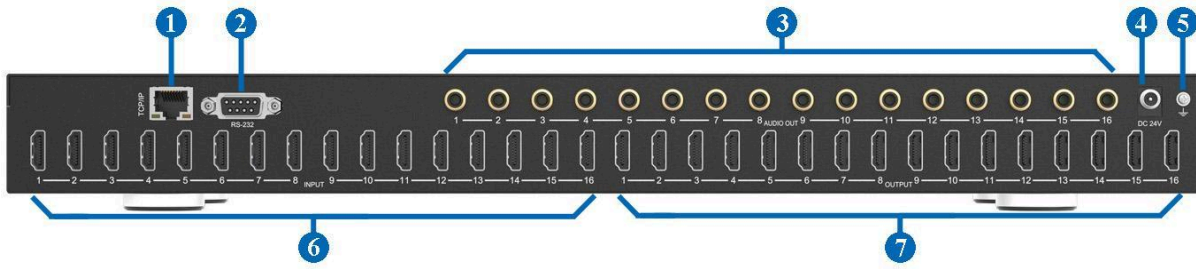
Front Panel



No.	Name	Function Description
1	OLED screen	Displays matrix switching status, input / output port, EDID, Baud rate, and current IP Address.
2	Power LED	The LED will illuminate green when the unit is connected to the power supply, and red when the unit is in standby.
3	Input / Output buttons	Press input button (1~16) first, then press the “AV” button, and then press output button (1~16, including “ALL”) to select the corresponding input and output ports.
4	AV / ALL buttons	AV: Switch the signal source to output e.g. Pressing “1 + AV +3” represents signal source 1 to output to display 3. All: Represents all the output ports. e.g. Pressing “1 + AV + ALL” represents signal source 1 to output to all displays.
5	MENU / ENTER / UP / DOWN	EDID check: On the main OLED display screen, press the “MENU” button to enter the Matrix switching status interface, then press the “UP/DOWN” button to check the status of all the ports. EDID setting: On the main OLED display screen, press the “MENU” button to enter the EDID setting interface, press the “UP/DOWN” button to select the required EDID and press the “ENTER” button. A prompt “copy to input:” will appear. Then press the “UP/DOWN” button to select the input port to set, and then press the “ENTER” button to confirm. Baud rate setting: On the main OLED display screen, press the “MENU” button to enter the Baud rate interface, and press the “UP/DOWN” button to select the required Baud rate, finally press the “ENTER” button to confirm the setting. IP Address check: On the main OLED display screen, press the “MENU” button to enter the IP interface, then press the “UP/DOWN” button to check the current IP address. Pressing the “MENU” button again will return to the main OLED display status.
6	IR Window	The IR receiver window only receives the IR remote signal from this product.

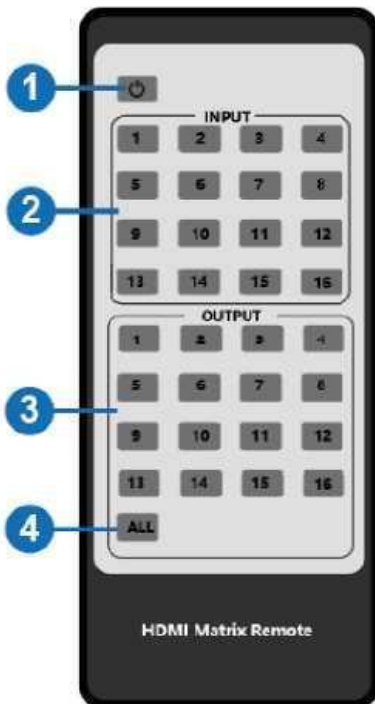


Rear Panel



No.	Name	Function Description
1	TCP/IP port	TCP/IP control port, connect to a PC or router with an RJ45 cable.
2	RS-232 port	Connect to a PC or control system by D-Sub 9-pin cable to transmit/receive RS-232 commands.
3	AUDIO OUT (1-16)	Connect to audio output devices such as audio amplifiers via a coaxial cable.
4	DC 24V	Connect to the supplied 24V power adapter.
5	GND	Connect the housing to ground.
6	INPUT ports (1-16)	Connect to an HDMI source device such as a media player or cable box with an HDMI cable.
7	OUTPUT ports (1-16)	Connect to an HDMI display device such as a TV or monitor with an HDMI cable.

IR Remote



- Power on or Standby:** Power on the Matrix or set it to standby mode.
- Input 1, 2, 3,...16:** Select input port buttons.
- Output 1, 2, 3,...16:** Select output port buttons.
- All:** Select all outputs simultaneously.

Operating Instructions: Press the input button first and then the press output button.

Example: Press input “1” button and then press the “All” button. The input “1” source will output to all connected display devices.



EDID Management

The BG-UHD-1616M has 21 factory defined EDID settings, 2 user-defined EDID modes, and 16 copy EDID modes. Select a defined EDID mode or copy EDID mode to an input port through the front panel buttons, RS-232 control, or WebGUI.

Front panel button operation: On the main OLED display screen, press the “MENU” button to enter the EDID setting interface. Press the “UP/DOWN” button to select the required EDID setting and then press the “ENTER” button. A prompt “copy to input:” will appear. Press the “UP/DOWN” button to select the input port you need to set and then press the “ENTER” button again to confirm this operation.

RS-232 control operation: Connect the Matrix to a PC with a serial cable, then open a Serial Command tool on the PC to send the ASCII commands to set the EDID settings. For details, refer to “EDID Setting” under the ASCII command list section of this manual.

WebGUI Operation: On the Input Setting page of the web GUI, select an EDID option from the dropdown to modify the selected input port settings.

The screenshot displays the 'Input Setting' page of the BZBGEAR web GUI. On the left is a navigation sidebar with options: Status, Video, **Input**, Output, CEC, Network, and System. The main content area is titled 'Input Setting' and contains a table with 16 rows, each representing an input port (HEM0 to HEM15). The table has four columns: 'Input', 'Active', 'Name', and 'EDID'. A dropdown menu is open for 'Input 1', showing a list of EDID options including '1000 Stereo Audio 2.0', '1000 Dolby/DTS 5.1', '1000 D-C Audio 7.1', '1000 Stereo Audio 2.0', '1000 Dolby/DTS 5.1', '2000 HD Audio 7.1', '3D Stereo Audio 2.0', and '3D Dolby/DTS 5.1'. Below the table, there are two sections: 'Load EDID to user memory' with a 'Select TDD File' field (containing 'Browse'), a 'Select Distribution' dropdown (set to 'User Defined'), and a 'Load' button; and 'Download EDID to your computer' with a 'Select TDD File' dropdown (set to 'HEM 01') and a 'Download' button.



EDID Settings List:

EDID Mode	EDID Description
1	1080p, Stereo Audio 2.0
2	1080p, Dolby/DTS 5.1
3	1080p, HD Audio 7.1
4	1080i, Stereo Audio 2.0
5	1080i, Dolby/DTS 5.1
6	1080i, HD Audio 7.1
7	3D, Stereo Audio 2.0
8	3D, Dolby/DTS 5.1
9	3D, HD Audio 7.1
10	4K2K30_444, Stereo Audio 2.0
11	4K2K30_444, Dolby/DTS 5.1
12	4K2K30_444, HD Audio 7.1
13	4K2K60_420, Stereo Audio 2.0
14	4K2K60_420, Dolby/DTS 5.1
15	4K2K60_420, HD Audio 7.1
16	4K2K60_444, Stereo Audio 2.0
17	4K2K60_444, Dolby/DTS 5.1
18	4K2K60_444, HD Audio 7.1
19	4K2K60_444, Stereo Audio 2.0 HDR
20	4K2K60_444, Dolby/DTS 5.1 HDR
21	4K2K60_444, HD Audio 7.1HDR
22	USER1
23	USER2
24	Copy from hdmi output 1
25	Copy from hdmi output 2
26	Copy from hdmi output 3
27	Copy from hdmi output 4
28	Copy from hdmi output 5
29	Copy from hdmi output 6
30	Copy from hdmi output 7
31	Copy from hdmi output 8
32	Copy from hdmi output 9
33	Copy from hdmi output 10
34	Copy from hdmi output 11
35	Copy from hdmi output 12
36	Copy from hdmi output 13
37	Copy from hdmi output 14
38	Copy from hdmi output 15
39	Copy from hdmi output 16



Web GUI User Guide

The BG-UHD-1616M may be controlled via a Web GUI. How to access the web interface is shown below:

Step 1: Find the current IP Address. The **default IP address is 192.168.1.100**.

1. Find the IP address via the panel buttons. On the initial OLED display, press the “MENU” button to enter the IP interface, then press the “UP/DOWN” button to check the current IP address.
2. Find the IP address via RS-232 control. Send the command “ r ipconfig!” through an ASCII Command tool, the following information will then populate:

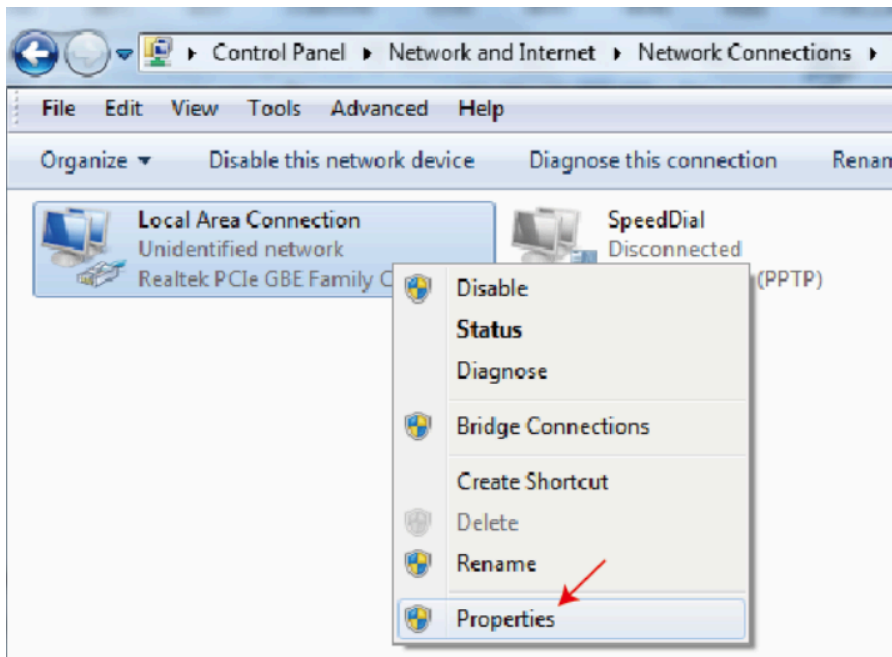
```
IP Mode: DHCP
IP:192.168.62.100
Subnet Mask:255.255.255.0
Gateway:192.168.62.1
TCP/IP port=8000
Telnet port=23
Mac address:6C:DF:FB:03:FB:6F
```

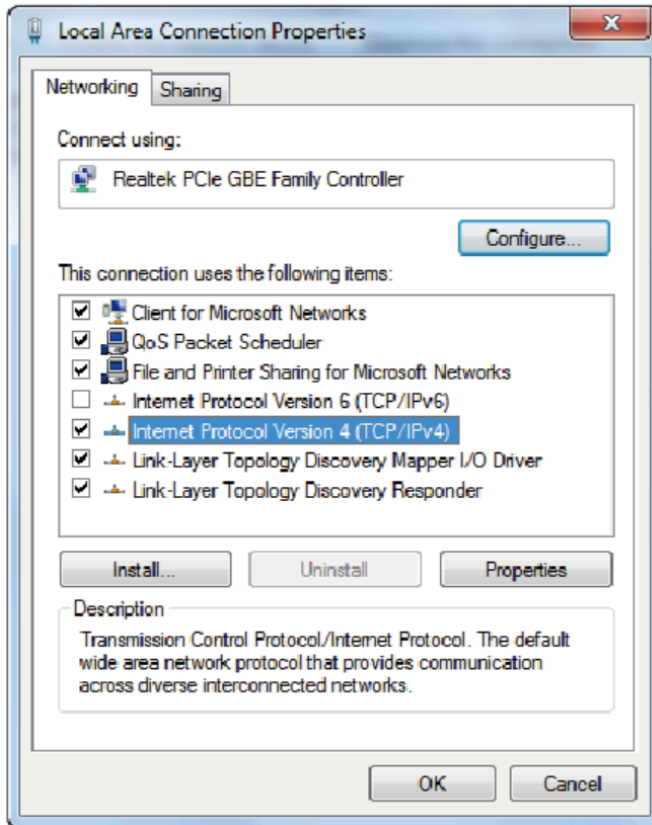
IP:192.168.62.100 in the above figure is the IP Address of the Matrix (the IP address is variable if its mode is set to DHCP).

For the details of ASCII control, please refer to the ASCII section of this manual.

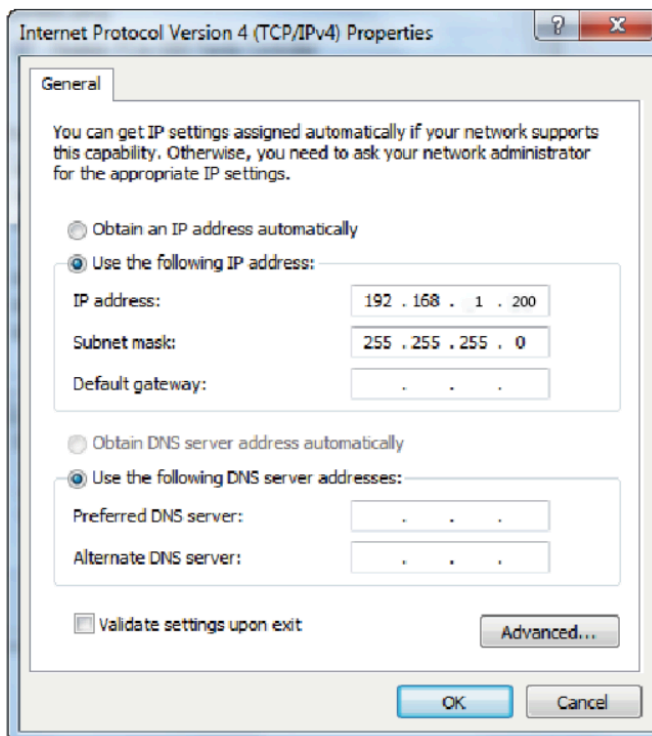
Step 2: Connect the matrix LAN port directly to your PC using an ethernet cable.

Step 3: On the PC, go to Control Panel> Network and Internet> Network Connections> Right click on Local Area Connections and select “Properties”.



**Step 4:** Double click “Internet Protocol Version 4 (TCP/IPv4)”

Step 5: Select “Use the following IP address” input a non-conflicting IP address that matches the scheme of your matrix (default 192.168.1.#). In the example below 192.168.1.200 is used as the IP address, 255.255.255.0 as the Subnet mask, and then click on “OK.”





Note: The IP address of the computer and matrix should be in the same network segment. If the matrix's IP address is 192.168.10.100, the computer's IP should be 192.168.10.X where X is 1~255 except 100.

Step 6: Input the current IP address of the Matrix into the PC's browser to access the Web interface.

After entering the WebGUI page, the following login page will be displayed:



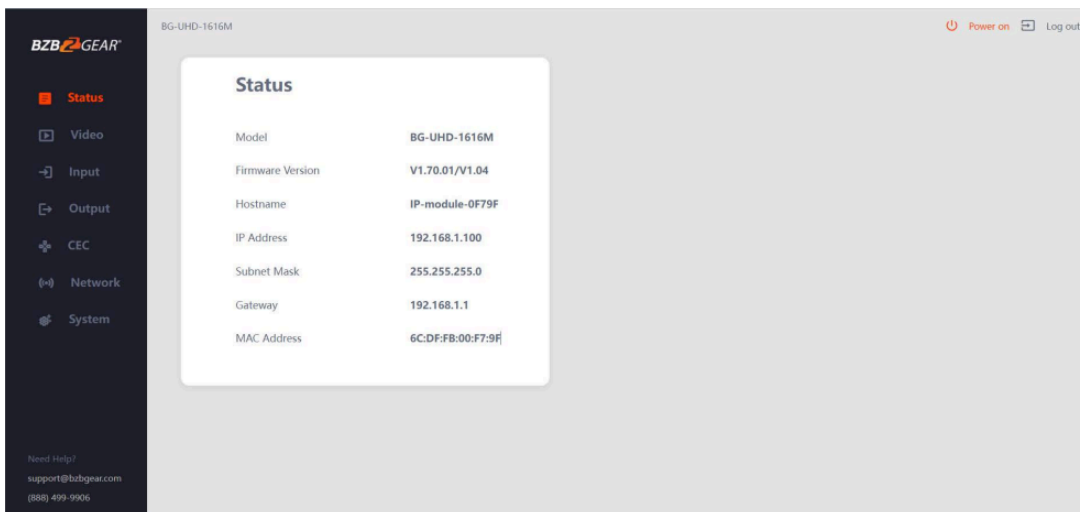
Select the Username from the list and enter the password. The default passwords are:

Username	User	Admin
Password	user	admin

After entering the password, click the “LOGIN” button and the Status page will appear.

Status Page

The Status page provides basic information about the model, installed firmware version, and the network settings of the device.





Video Page

The following operations may be performed on the Video page:

1. **Output:** The selected OUTPUT port's input signal source may be modified.
2. **All Output:** All OUTPUT ports will be changed to the selected input source.
3. **Input:** Click the drop-down menu to select input source for the corresponding OUTPUT port.
4. **Presets Name:** Name the current scene with a maximum length of 12 characters.
5. **Presets Set:** Recall the settings of the previously saved matrix switch configuration.
6. **Presets Save:** Save the matrix switch configuration as the selected preset.
7. **Presets Clear:** Clear the selected matrix switch preset configuration.



Input Page

Input Setting

Inputs	Active	Name	EDID
HDMI 1	●	Input 1	1080P;Stereo Audio 2.0
HDMI 2	●	Input 2	1080P;Stereo Audio 2.0
HDMI 3	●	Input 3	1080P;Dolby/DTS 5.1
HDMI 4	●	Input 4	1080P;HD Audio 7.1
HDMI 5	●	Input 5	1080i;Stereo Audio 2.0
HDMI 6	●	Input 6	1080i;Dolby/DTS 5.1
HDMI 7	●	Input 7	1080i;HD Audio 7.1
HDMI 8	●	Input 8	3D;Stereo Audio 2.0
HDMI 9	●	Input 9	3D;Dolby/DTS 5.1
HDMI 10	●	Input 10	1080P;Stereo Audio 2.0
HDMI 11	●	Input 11	1080P;Stereo Audio 2.0
HDMI 12	●	Input 12	1080P;Stereo Audio 2.0
HDMI 13	●	Input 13	1080P;Stereo Audio 2.0
HDMI 14	●	Input 14	1080P;Stereo Audio 2.0
HDMI 15	●	Input 15	1080P;Stereo Audio 2.0
HDMI 16	●	Input 16	1080P;Stereo Audio 2.0

Load EDID to user memory

Select EDID File:

Select Destination:

Download EDID to your computer

Select EDID File:

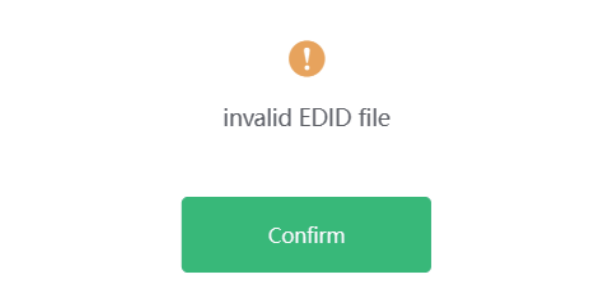
The following operations may be performed on the Input page:

1. **Inputs:** Listed HDMI input channel of the device.
2. **Active:** Indicates if the channel is connected to an input source (Green=Connected / Yellow=Disconnected).
3. **Name:** The input channel's name can be modified up to a length of 12 characters.
4. **EDID:** Set the selected channel's EDID. The specific operation is as follows:

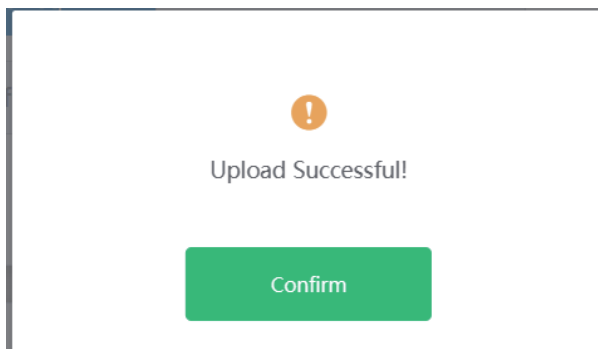


Load EDID to user memory

Click the “Browse” button, then select the bin file. Selecting the wrong EDID file will cause the prompt below to display:



Select the correct file and then check the name of the selected file. Select “User 1” or “User 2” and then click “Upload”. After successful setting, the prompt below will be displayed:



Download the EDID File for the Corresponding Input Channel

Click the drop-down box of “Select EDID File” to select the corresponding input channel. Then click “Download” to download the corresponding EDID file.



Output Page

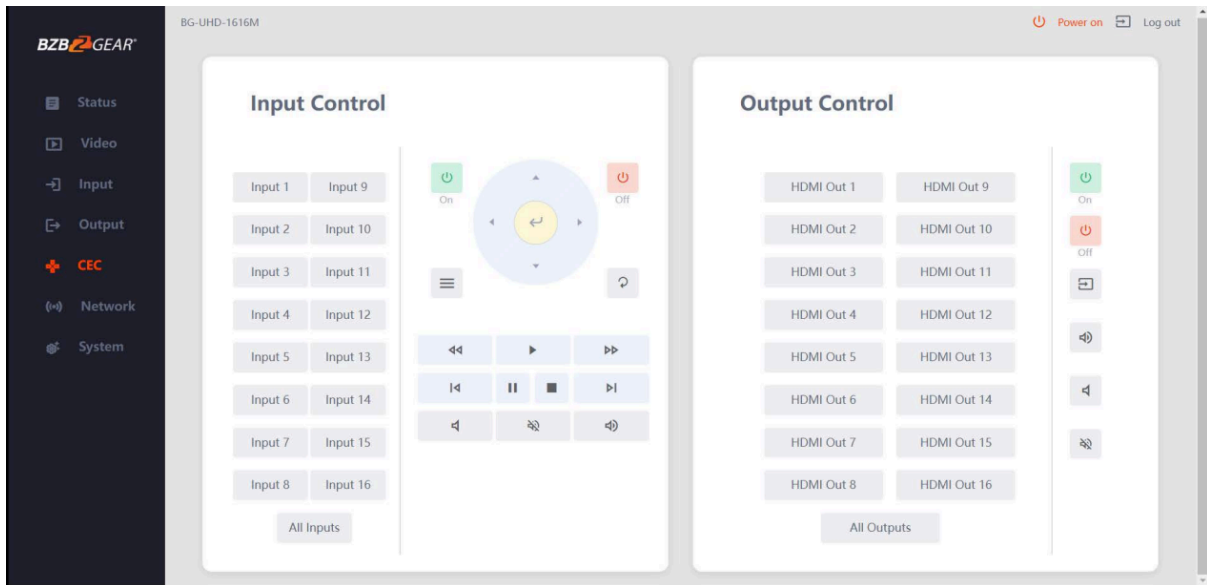
Outputs	Cable	Name	Scaler Mode	ARC	Stream
Output 1	●	HDMI Out 1	Bypass	On Off	On Off
Output 2	●	HDMI Out 2	Bypass	On Off	On Off
Output 3	●	HDMI Out 3	Bypass	On Off	On Off
Output 4	●	HDMI Out 4	Bypass	On Off	On Off
Output 5	●	HDMI Out 5	Bypass	On Off	On Off
Output 6	●	HDMI Out 6	Bypass	On Off	On Off
Output 7	●	HDMI Out 7	Bypass	On Off	On Off
Output 8	●	HDMI Out 8	Bypass	On Off	On Off
Output 9	●	HDMI Out 9	Bypass	On Off	On Off
Output 10	●	HDMI Out 10	Bypass	On Off	On Off
Output 11	●	HDMI Out 11	Bypass	On Off	On Off
Output 12	●	HDMI Out 12	Bypass	On Off	On Off
Output 13	●	HDMI Out 13	Bypass	On Off	On Off
Output 14	●	HDMI Out 14	Bypass	On Off	On Off
Output 15	●	HDMI Out 15	Bypass	On Off	On Off
Output 16	●	HDMI Out 16	Bypass	On Off	On Off

The following operations may be performed on the Output page:

1. **Outputs:** Listed output channels of the device.
2. **Cable:** Indicates the connection status of the output ports. When the output port is connected to an active display it will be green; when no display is detected it will be yellow.
3. **Name:** Modify the output name by entering up to 12 characters in the name box.
4. **Scaler Mode:** Set the selected output's resolution.
5. **ARC:** Turn on/off the ARC (audio return channel) function.
6. **Stream:** Turn on/off the output stream.



CEC Page



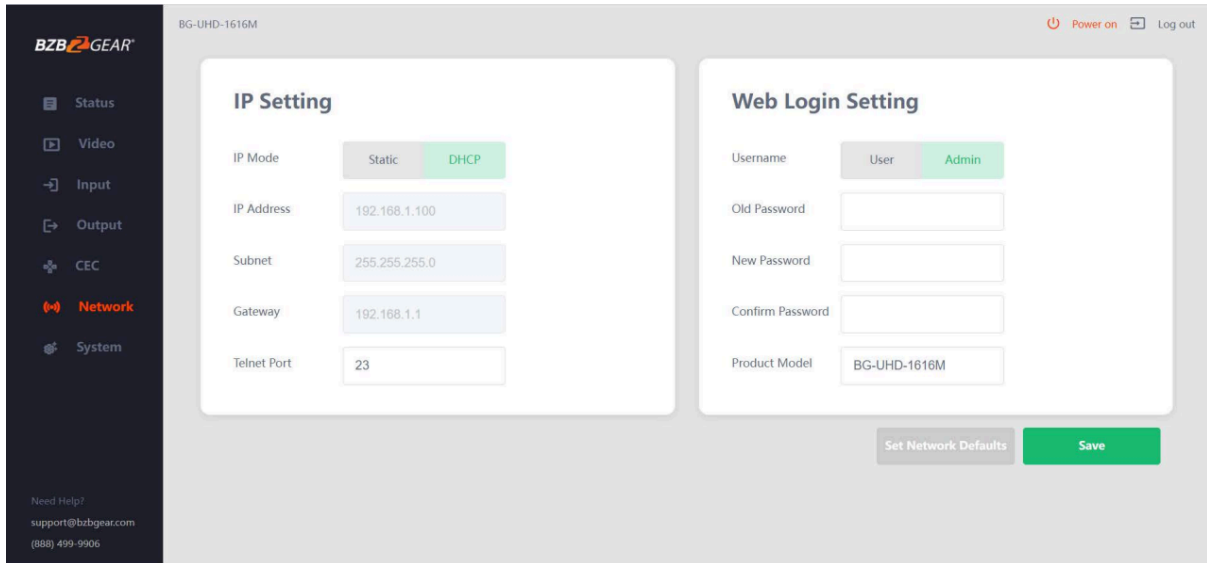
Perform CEC management on this page:

1. Input Control: Control the operation of each input source by clicking the icons on the page.
2. Output Control: Control the operation of each display, such as power on/off, volume +/-, and active source switching.

Note: CEC operation is dependent on the connected device and some features may not be available or have the ability to be controlled by this unit.



Network Page



Static

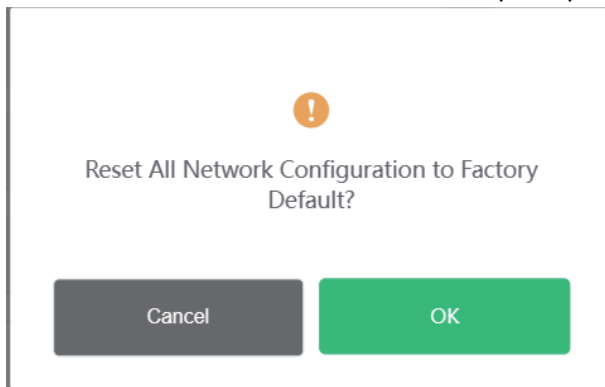
Manually configure the unit’s IP address, Subnet, Gateway, and then click ‘Save.’

DHCP

Set the device IP settings to DHCP and the unit will be automatically assigned an IP address by your network if a router or DHCP server is present and then click ‘Save.’

Set the Default Network

Click “Set Network Defaults”, and the prompt below will display:

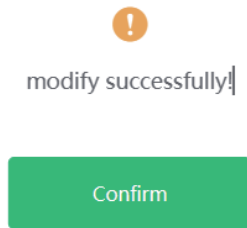


Click “OK” to search the IP Address will be set to the factory default settings. The unit will automatically redirect you to the login page once complete



Modify Password

Click the username whose password you wish to edit, enter the correct old password, new password, and confirm the new password, and then click "Save." After successfully modifying the password the following prompt will be displayed:

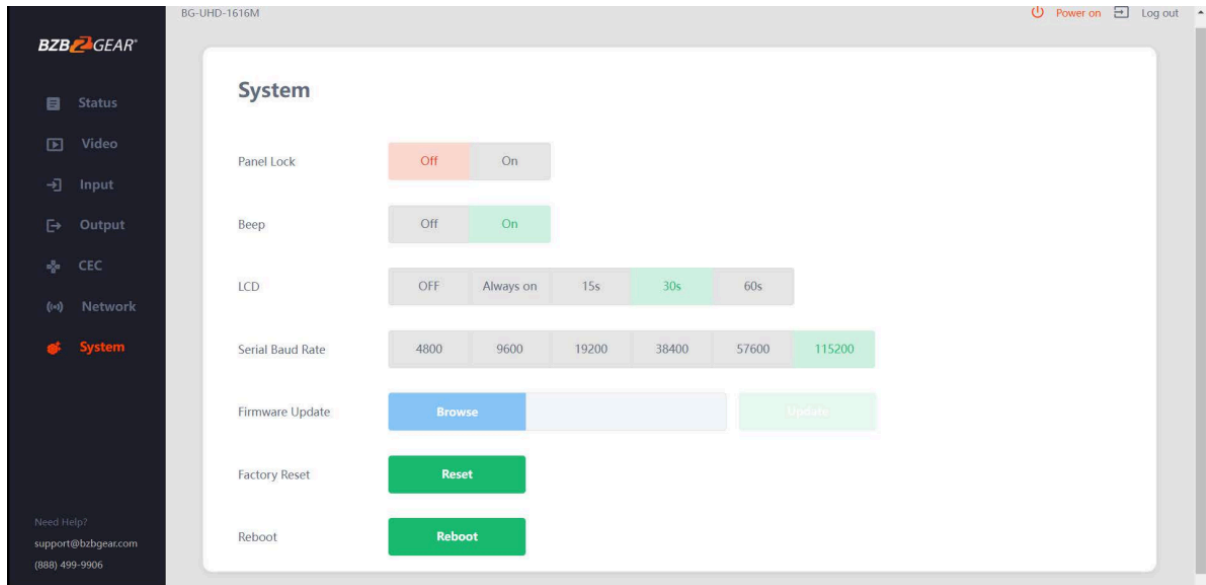


Rules for changing passwords:

1. The password field cannot be empty.
2. The new password can't be the same as the old password.
3. The new password and confirm password must be the same.



System Page



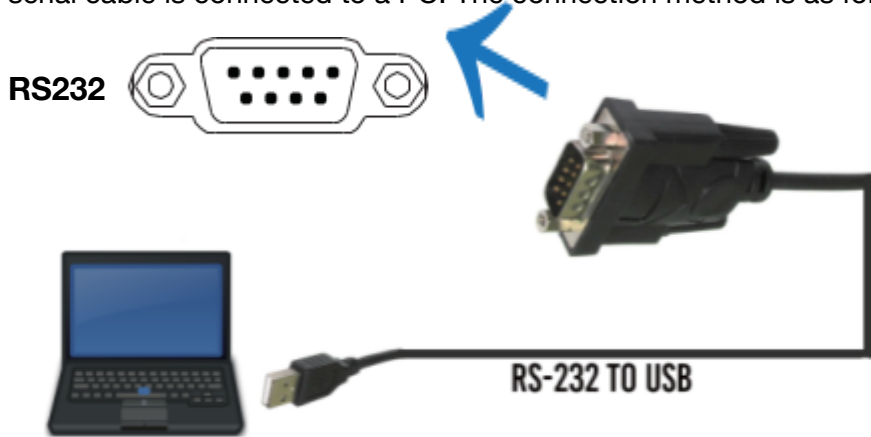
1. **Panel Lock:** Click the “Panel Lock” to lock/unlock the front panel buttons. When toggled to “On” the front panel buttons will be unavailable; “Off” indicates the panel buttons are available/functional.
2. **Beep:** Click the “Beep” toggle to turn on/off the beep confirmation when a setting, input, output, etc. is modified.
3. **LCD:** Turn the LCD on/off and set idle time (15s/30s/60s) in which it stays illuminated.
4. **Serial Baud Rate:** Click the value to set the Serial Baud Rate.
5. **Firmware Update:** Click “Browse” to select the update file, then click “Update” to complete firmware update.
6. **Factory Reset:** Reset the unit to factory default settings by clicking “Reset”.
7. **Reboot:** Reboot the unit by clicking “Reboot”.

Note: After reset or reboot the switch will return to the login page.



RS-232 Control Commands

The BG-UHD-1616M supports RS-232 control. A serial cable with RS-232 male head and DB9 transfer USB male head are required. The RS-232 head of the serial cable is connected to the RS-232 control port with DB 9 on the back of the Matrix and the USB end of the serial cable is connected to a PC. The connection method is as follows:



Open a Serial Command tool on a PC such as Access Port or DockLite to send ASCII commands to control the Matrix.

ASCII Command List:

ASCII Command
Serial port protocol. Baud rate: 115200, Data bits: 8bit, Stop bits:1, Check bit: 0
x - Parameter 1 y - Parameter 2 ! - Delimiter

Command Code	Function Description	Example	Feedback	Default Setting
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	Power on System Initializing... Initialization Finished! FW version x.xx.xx	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	Reboot... System Initializing... Initialization Finished! FW version x.xx.xx	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	HDP-MXB1616	
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/ out connection, video/ audio crosspoint, edid, scaler, network status	
r fw version!	Get Firmware version	r fw version!	MCU BOOT: Vx.xx.xx MCU APP: Vx.xx.xx WEB GUI: Vx.xx	
r link in x!	Get the connection status of the x input port, x=0~16(0=all)	r link in 1!	hdmi input 1: connect	
r link out y!	Get the connection status of the y output port, y=0~16(0=all)	r link out 1!	hdmi output 1: connect	



Command Code	Function Description	Example	Feedback	Default Setting
s reset!	Reset to factory defaults	s reset!	Reset to factory defaults System Initializing... Initialization Finished! FW version x.xx.xx	
s beep z!	Enable/Disable buzzer function, z=0~1 (z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off,z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s lcd on time z!	Set LCD screen remain on time, z=0~4(0:off, 1 :always on, 2:15s, 3:30s, 4:60s)	s lcd on time 1!	lcd on 15 seconds	lcd on 30 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	lcd always on	
s save preset z!	Save switch state between all output port and the input port to preset z, z=1~8	s save preset 1!	save to preset 1	
s recall preset z!	Call saved preset z scenarios, z=1~8	s recall preset 1!	recall from preset 1	
s clear preset z!	Clear stored preset z scenarios, z=1~8	s clear preset 1!	clear preset 1	
r preset z!	Get preset z information, z=1~8	r preset 1!	video/audio crosspoint	
Output Setting				
s in x av out y!	Set input x to output y, x=1~16, y=0~16(0=all)	s in 1 av out 2!	input 1 -> output 2	PTP
r av out y!	Get output y signal status y=0~16(0=all)	r av out 0!	input 1 -> output 1 input 2 -> output 2 input 16 -> output 16	
s hdmi y stream z!	Set output y stream on/off, y=0~16(0=all) z=0~1 (0:disable,1 :enable)	s hdmi 1 stream 1! s hdmi 0 stream 1!	Enable hdmi output 1 stream Disable hdmi output 1 stream Enable hdmi all outputs stream Disable hdmi all outputs stream	enable
r hdmi y stream!	Get output y stream status, y=0~16(0=all)	r hdmi 1 stream!	Enable hdmi output 1 stream	
s hdmi y scaler z!	Set hdmi output y port output scaler mode, y=0~16 (0=all), z=1~3(1 =bypass, 2=4k->1080p, 3=Auto)	s hdmi 1 scaler 1! s hdmi 0 scaler 1!	hdmi output 1 set to bypass mode hdmi all outputs set to bypass mode	hdmi all outputs set to bypass mode
r hdmi y scaler!	Get hdmi output y port output mode y=0~16(0=all)	r hdmi 1 scaler !	hdmi output 1 set to bypass mode	
EDID Setting				
s edid in x from z!	Set input x EDID from default EDID z, x=0~16 (0=all), z=1~39 1, 1080p,Stereo Audio 2.0 2, 1080p,Dolby/DTS 5.1 3, 1080p,HD Audio 7.1 4, 1080i,Stereo Audio 2.0 5, 1080i,Dolby/DTS 5.1 6, 1080i,HD Audio 7.1 7, 3D,Stereo Audio 2.0 8, 3D,Dolby/DTS 5.1 9, 3D,HD Audio 7.1 10, 4K2K30_444,Stereo Audio 2.0 11, 4K2K30_444,Dolby/DTS 5.1 12, 4K2K30_444,HD Audio 7.1 13, 4K2K60_420,Stereo Audio 2.0 14, 4K2K60_420,Dolby/DTS 5.1 15, 4K2K60_420,HD Audio 7.1 16, 4K2K60_444,Stereo Audio 2.0 17, 4K2K60_444,Dolby/DTS 5.1 18, 4K2K60_444,HD Audio 7.1 19, 4K2K60_444,Stereo Audio 2.0 HDR 20, 4K2K60_444,Dolby/DTS 5.1 HDR 21, 4K2K60_444,HD Audio 7.1 HDR	s edid in 1 from 1! s edid in 0 from 1!	input 1 EDI D: 1080p, Stereo Audio 2.0 all inputs EDID:1080p, Stereo Audio 2.0	1080p,Stereo Audio 2.0



Command Code	Function Description	Example	Feedback	Default Setting
	22, USER1 23, USER2 24, copy from hdmi output 1 25, copy from hdmi output 2 26, copy from hdmi output 3 27, copy from hdmi output 4 28, copy from hdmi output 5 29, copy from hdmi output 6 30, copy from hdmi output 7 31, copy from hdmi output 8 32, copy from hdmi output 9 33, copy from hdmi output 10 34, copy from hdmi output 11 35, copy from hdmi output 12 36, copy from hdmi output 13 37, copy from hdmi output 14 38, copy from hdmi output 15 39, copy from hdmi output 16			
r edid in x!	Get EDID status of the input x, x=0~16(0=all input)	r edid in 0!	input 1 EDID: 4K2K60_444, Stereo Audio 2.0 input 2 EDID: 4K2K60_444, Stereo Audio 2.0 input 3 EDID: 4K2K60_444, Stereo Audio 2.0 input 4 EDID: 4K2K60_444, Stereo Audio 2.0	
r edid data hdmi y!	Get the EDID data of the hdmi output y port, y=1~16	r edid data hdmi 1	EDID: 00 FF FF FF FF FF FF 00	
Audio Setting				
s hdmi y arc z!	Turn on/off ARC of HDMI output y, y=0~16(0=all) z=0~1 (z=0,off,z=1 on)	s hdmi 1 arc 1! s hdmi 0 arc 1!	hdmi output 1 arc on hdmi output 1 arc off hdmi all outputs arc on hdmi all outputs arc off	
r hdmi y arc!	Get the ARC state of HDMI output y, y=0~16(0=all)	r hdmi 1 arc!	hdmi output 1 arc on	off
CEC Setting				
s cec in x on!	set input x power on by CEC, x=0~16(0=all input)	s cec in 1 on!	input 1 power on	
s cec in x off!	set input x power off by CEC, x=0~16(0=all input)	s cec in 1 off!	input 1 power off	
s cec in x menu!	set input x open menu by CEC, x=0~16(0=all input)	s cec in 1 menu!	input 1 open menu	
s cec in x back!	set input x back operation by CEC, x=0~16(0=all input)	s cec in 1 back!	input 1 back operation	
s cec in x up!	set input x menu up operation by CEC, x=0~16(0=all input)	s cec in 1 up!	input 1 menu up operation	
s cec in x down!	set input x menu down operation by cEc, x=0~16(0=all input)	s cec in 1 down!	input 1 menu down operation	
s cec in x left!	set input x menu left operation by CEC, x=0~16(0=all input)	s cec in 1 left!	input 1 menu left operation	
s cec in x right!	set input x menu right operation by CEC, x=0~16(0=all input)	s cec in 1 right!	input 1 menu right operation	
s cec in x enter!	set input x menu enter by CEC, x=0~16(0=all input)	s cec in 1 enter!	input 1 menu enter operation	
s cec in x play!	set input x play by CEC, x=0~16(0=all input)	s cec in 1 play!	input 1 play operation	
s cec in x pause!	set input x pause by CEC, x=0~16(0=all input)	s cec in 1 pause!	input 1 pause operation	
s cec in x stop!	set input x stop by CEC, x=0~16(0=all input)	s cec in 1 stop!	input 1 stop operation	
s cec in x rew!	set input x rewind by CEC, x=0~16(0=all input)	s cec in 1 rew!	input 1 rewind operation	
s cec in x mute!	set input x volume mute by CEC, x=0~16(0=all input)	s cec in 1 mute!	input 1 volume mute	

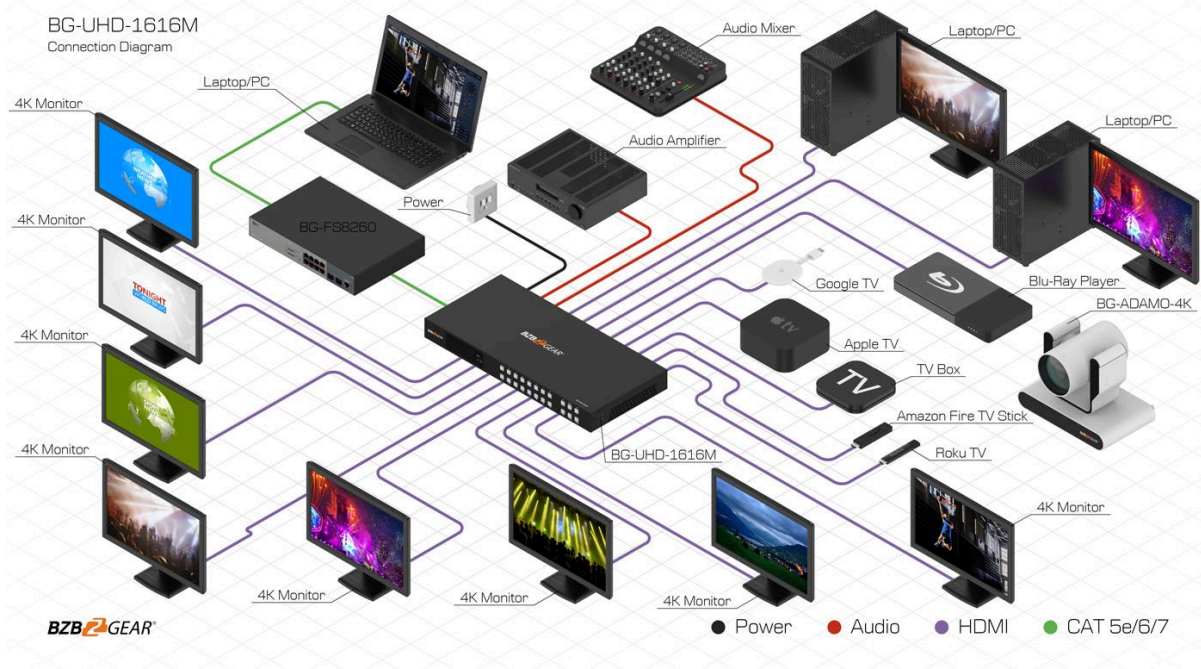


Command Code	Function Description	Example	Feedback	Default Setting
s cec in x vol-!	set input x volume down by CEC, x=0~16(0=all input)	s cec in 1 vol-!	input 1 volume down	
s cec in x vol+!	set input x volume up by CEC, x=0~16(0=all input)	s cec in 1 vol+!	input 1 volume up	
s cec in x ff!	set input x fast forward by CEC, x=0~16(0=all input)	s cec in 1 ff!	input 1 fast forward operation	
s cec in x previous!	set input x previous by CEC, x=0~16(0=all input)	s cec in 1 previous!	input 1 previous operation	
s cec in x next!	set input x next by CEC, x=0~16(0=all input)	s cec in 1 next!	input 1 next operation	
s cec hdmi out y on!	set hdmi output y power on by CEC, y=0~16(0=all output)	s cec hdmi out 1 on!	hdmi output 1 power on	
s cec hdmi out y off	set hdmi output y power off by CEC, y=0~16(0=all output)	s cec hdmi out 1 on!	hdmi output 1 power off	
s cec hdmi out y mute!	set hdmi output y volume mute by CEC, y=0~16(0=all output)	s cec hdmi out 1 mute!	hdmi output 1 volume mute	
s cec hdmi out y vol-!	set hdmi output y volume down by CEC, y=0~16(0=all output)	s cec hdmi out 1 vol-!	hdmi output 1 volume down	
s cec hdmi out y vol+!	set hdmi output y volume up by CEC, y=0~16(0=all output)	s cec hdmi out 1 vol+!	hdmi output 1 volume up	
s cec hdmi out y active!	set hdmi output y active source by CEC, y=0~16(0=all output)	s cec hdmi out 1 active!	hdmi output 1 active source	
Network Setting				
r ipconfig!	Get the Current IP Configuration	r ipconfig!	IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	
r mac addr!	Get network MAC address	r mac addr!	Mac address: 00:1C:91:03:80:01	
s ip mode z!	Set network IP mode to static IP or DHCP, z=0~1 (z=0 Static, z=1 DHCP)	s ip mode 0!	Set IP mode:Static (Please use "s net reboot!" command or repower device to apply new config!)	
r ip mode!	Get network IP mode	r ip mode!	IP Mode: Static	
s ip addr xxx.xxx.xxx.xxx!	Set network IP address	s ip addr 192.168.1.100!	Set IP address: 192.168.1.100 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config static address, set DHCP off first.	
r ip addr!	Get network IP address	r ip addr!	IP address: 192.168.1.100	
s subnet xxx.xxx.xxx.xxx!	Set network subnet mask	s subnet 255.255.255.0!	Set subnet Mask: 255.255.255.0 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config subnet mask, set DHCP off first.	
r subnet!	Get network subnet mask	r subnet!	Subnet Mask: 255.255.255.0	
s gateway xxx.xxx.xxx.xxx!	Set network gateway	s gateway 192.168.1.1!	Set gateway: 192.168.1.1 Please use "s net reboot!" command or repower device to apply new config! DHCP on, Device can't config gateway, set DHCP off first.	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.1.1	
s tcp/ip port x!	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000!	Set TCP/IP port:8000	
r tcp/ip port!	Get network TCP/IP port	r tcp/ip port!	TCP/IP port:8000	
s telnet port x!	Set network telnet port (x=1~65535)	s telnet port 23!	Set Telnet port:23	
r telnet port!	Get network telnet port	r telnet port!	Telnet port:23	
s net reboot!	Reboot network modules	s network reboot!	Network reboot... IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP	



Command Code	Function Description	Example	Feedback	Default Setting
			port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	

Application Diagram





BZBGear Switch Control App

BG-Switch-Control | Quick User Guide



BZBGear Switch Control App



Overview

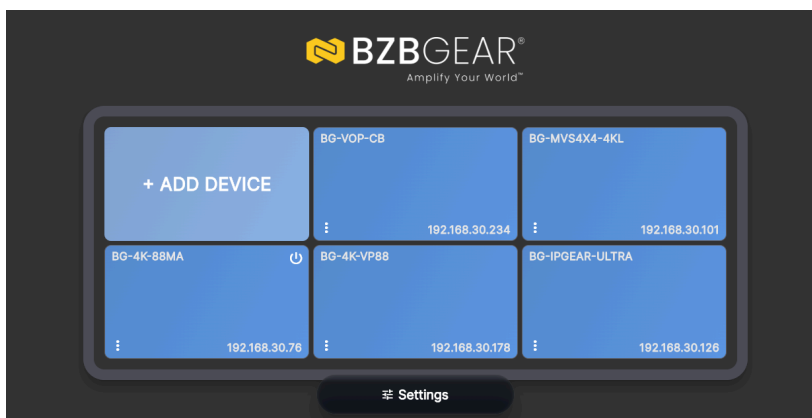
The **BZBGear Switch Control App (BG-Switch-Control)** is a multi-platform network control application for compatible BZBGear matrix switchers. It provides centralized control of **video routing, audio routing, presets, and video wall configurations** through an intuitive graphical interface.

Platform Compatibility

Supported operating systems:

- **Windows**
- **macOS**
- **iOS**
- **Android**
- All control devices must be connected to the **same local network** as the matrix switcher.

Connection & Startup

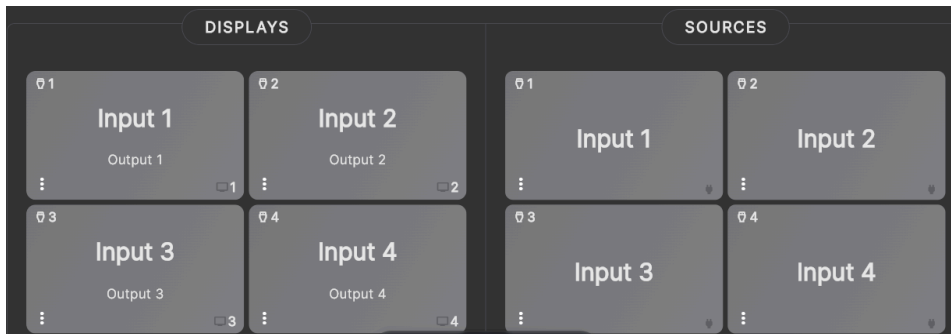


1. Connect the BZBGear matrix switcher to the local network.
2. Connect the control device (PC, tablet, or smartphone) to the same network.
3. Launch the **BG-Switch-Control App**.
4. Select the correct product from the (Add Device) drop-down list



- Fill in the device information (IP address, name, etc.)

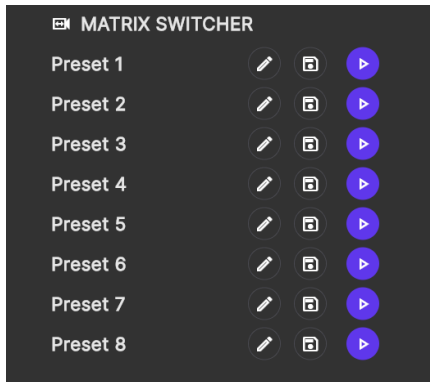
Matrix Switching



- Rename input and output sources (Optional)
- Press and hold an input source.
- Drag the input from the **Inputs panel** to the desired output.
- Release to complete the assignment.
- A single input can be routed to **multiple outputs simultaneously**.

Preset Management

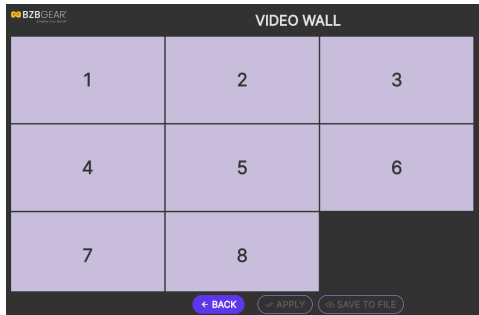
Presets allow quick saving and recall of system configurations.



1. Configure routing or video wall settings.
2. Select **Save as Preset**.
3. Assign a preset number and name.
4. Recall presets at any time to instantly restore configurations.



Video Wall Control



- Select **Create Video Wall**.
- Drag and arrange outputs into the desired layout.
- Select a source to span across the video wall.
- Select **Set Video Wall** to apply.
- Video walls appear on the main screen and support **real-time switching** and **preset storage**.

Pass-Through Mode

Pass-Through mode restores a direct, default input-to-output mapping.

This mode is useful for:

- System resets
- Testing
- Simplified routing

Refresh Data

The **Refresh Data** function resynchronizes the app with the connected switcher.

Use this if configuration changes are made or if the interface appears out of sync.

App Capabilities

- Matrix video routing
- Video wall creation and control
- Preset save and recall
- Audio matrix control (*supported devices*)
- Multi-user access with role-based permissions

Multi-platform operation



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

1.888.499.9906

Email

support@bzbgear.com

Live Chat

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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