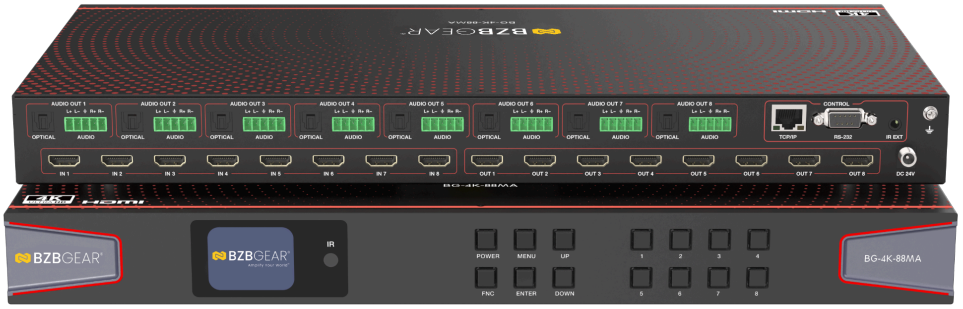
BG-4K-88MA

8x8 4K UHD HDMI 2.0 Matrix Switcher with Audio De-embedding and Independent Routing (4K60 - 4:4:4 and HDR 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-4K-88MA is a professional-grade 8x8 HDMI™ matrix switcher designed to distribute ultra-high-definition video and multi-channel digital audio from up to eight HDMI™ sources to eight HDMI™ displays. Supporting resolutions up to 4K@60Hz 4:4:4 and a bandwidth of 18 Gbps, this matrix delivers pristine image quality and robust performance for demanding AV environments.

Designed with flexibility in mind, the BG-4K-88MA allows independent routing of video and audio signals, with built-in audio de-embedding to extract analog stereo or digital optical audio from either the HDMI™ input or the ARC return channel of the HDMI™ output. Each HDMI™ output also supports automatic downscaling from 4K/2K to 1080p (no frame rate conversion), ensuring compatibility with legacy displays.

Control options include front panel buttons, IR remote, RS-232, LAN, an intuitive Web GUI, and our Switch Control App, making integration seamless in both residential and commercial AV systems.

Features

- **HDCP 2.2 Compliant –** Ensures secure content transmission from source to display.
- **Supports 18Gbps Video Bandwidth –** Handles high-performance video signals with ease.
- **Up to 4K2K@60Hz 4:4:4 Resolution –** Compatible with HDMI™ 2.0b for crystal-clear Ultra HD video.
- **HDR Pass-Through –** Supports HDR, HDR10, HDR10+, Dolby Vision LLM, and HLG for vivid color and contrast.
- **Independent HDMI™ Video and Audio Routing –** Allows flexible signal management for advanced AV setups.
- **4K/2K to 1080p Downscaling –** Each output port supports resolution downscaling (no frame rate conversion).
- **HDMI™ Audio Support Up to 7.1-Channel HD –** Delivers rich, immersive sound.
- **Audio De-Embedding –** Extracts audio from HDMI™ input or ARC and outputs via analog L/R and digital optical.
- **ARC, CEC, and Smart EDID Management –** Enhances compatibility and control between devices.
- **Multiple Control Options –** Operate via front panel buttons, IR remote, RS-232, LAN, or Web GUI.
- **1U Rack-Mountable Design –** Compact enclosure with front panel LCD display for easy integration and monitoring.

Packing List

- 1× 4K 8×8 HDMI™ Matrix
- 1× 24V/3.75A Power Adapter
- 1× IR Remote
- 1× IR Wideband Receiver Cable (1.5m)
- 1× RS-232 Serial Cable (1.5m, male to female head)
- 8× 5pin-3.5mm Phoenix Connector
- 8× Machine Screw (KM3*6)
- 2× Mounting Ear
- 1× User Manual

Specifications

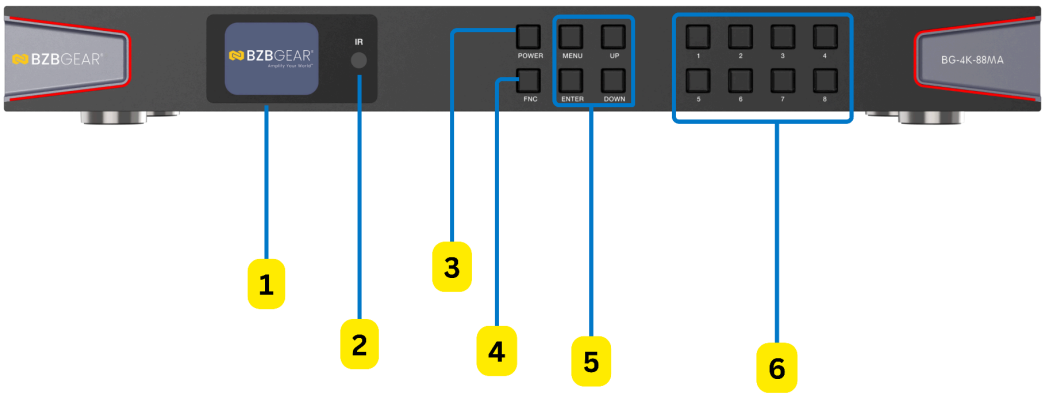
Technical			
HDMI™ Compliance	HDMI™ 2.0b		
HDCP Compliance	HDCP 2.2		
Video Bandwidth	18Gbps		
Video Resolution	Up to 4K60Hz 4:4:4 * All available resolutions are shown as follows.		
Color Space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0		
Color Depth	8/10/12-bit		
HDR Formats	HDR, HDR10, HDR10+, Dolby Vision LLM, HLG		
Audio Formats	**HDMI™ IN/OUT:** LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD **AUDIO BREAKOUT:** **Optical outputs:** Up to LPCM/Dolby/DTS 5.1CH **Analog Audio Outputs:** LPCM 2CH (sample rate 32~192kHz)		
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)		
Connection			
Input ports	8× INPUT [HDMI™ Type A, 19-pin female]		
Output ports	8× OUTPUT [HDMI™ Type A, 19-pin female] 8× OPTICAL AUDIO OUT 8× L/R AUDIO OUT [5-pin phoenix connector]		
Control ports	1 × TCP/IP [RJ45] 1 × RS-232 [D-Sub9] 1 × IR EXT [3.5mm audio jack]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	17in × 8.1in × 1.8in / 440mm [W] × 206mm [D] × 44.5mm [H]		
Weight	5.25 lbs [2.38kg]		
Power Supply	Input: AC 100 - 240V 50/60Hz, Output: DC 24V/3.75A (US/EU standard, CE/FCC/UL certified)		
Power Consumption	Full Load: 52.3W; Stand-by: 2.6W		
Operating Temperature	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Operating Humidity	20%~80% relative humidity, non-condensing		
Storage Humidity	10%~90% relative humidity, non-condensing		
Video Resolution	**4K60**	**4K30**	**1080P**
HDMI™ Cable Length (IN / OUT)	5m/16ft	10m/33ft	15m/49ft
The use of “Premium High Speed HDMI™” cable is highly recommended.			

Supported Input/Output Resolutions

Category	Resolution	Supported Refresh Rates (Hz)
SD	640×480p	60
	720×480i / 480p	59.94
	720×576i / 576p	50
PC	800×600p	60
	1024×768p	60
	1280×1024p	60
	1360×768p	60
	1440×900p / 1050p	60
	1600×1200p	60
HD	1280×720p (720p)	50, 59.94, 60
	1920×1080i (1080i)	50, 59.94, 60
	1920×1080p (1080p)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60
Ultra HD	3840×2160 (2160p)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60
4K DCI	4096×2160	23.98, 24, 25, 29.97, 30, 50, 59.94, 60

Operation Controls and Functions

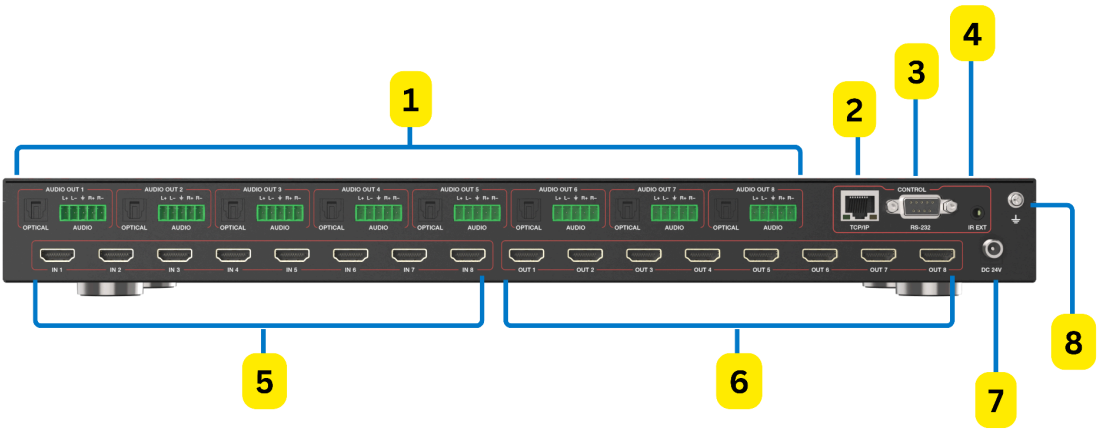
Front Panel



NO.	Name	Function Description
1	LCD screen	Display matrix switching status, input/output port, EDID, baud rate, IP Address, etc.
2	IR	IR signal receiver. Receiving the signal from the IR remote.
3	FNC	Multi-function button. **FNC + Number (1~8):** Select the input source for all output channels. Number (1~8) means the input source (1~8). **FNC + FNC + 1:** Display IP address. **FNC + FNC + 2:** Display the baud rate of the serial port. **Note:** The info above will disappear automatically in 3 seconds.
4	POWER button & indicator light	To power on the device, press the button; the light will turn blue. Long-press the button for 3 seconds to enter standby mode, during which the light will be red.
5	MENU / ENTER / UP /DOWN	Screen operation buttons. Take RESET, for example. ① On the initial LCD display screen, press the “MENU” button. There are OUTPUT SETTINGS/INPUT SETTINGS/AUDIO BREAKOUT/SETUP/FIRMWARE items to be selected. ② Press the “UP/DOWN” button to select the SETUP item. ③ Press the “ENTER” button to enter the next level. There are LCD ONTIME/BAUDRATE/NETWORK/REBOOT/ RESET items to be selected. ④ Press the “UP/DOWN” button to select the RESET item. ⑤ Press the “ENTER” button, and it will prompt to confirm. Now press "FNC" to continue, or press "MENU" to return. **Note:** Pressing the “MENU” button will return to the previous menu on any page.

6	INPUT / OUTPUT (1~8) buttons	Press a number (1~8) first to select an output channel, and then press a number (1~8) to select the corresponding input source.

Rear Panel



NO.	Name	Function Description
1	AUDIO OUTPUTS (1~8)	OPTICAL: Optical audio output port, connected to an audio An output device, such as an audio amplifier.
		L/R AUDIO: Analog audio output port, supporting balanced/ unbalanced audio output, with a maximum support of 2Vrms. Balanced connection method: L+, L-, ⏚, R+, R- Unbalanced connection method: L+, ⏚, R+
2	TCP/IP	TCP/IP control port, connected to a PC or router with an RJ45 cable
3	RS-232 port	Connects to a PC or control system to control the matrix.
4	IR EXT	Connects to a 12V wideband IR receiver cable. If the IR receiver window of the unit is blocked or the unit is installed in a closed area out of the infrared line of sight, the IR receiver cable can be inserted into the “IR EXT” port to receive the IR remote signal.
5	HDMI INPUTS (1~8)	HDMI input ports, connected to an HDMI source device such as 8K computer, DVD, or set-top box with HDMI cable.
6	HDMI OUTPUTS (1~8)	HDMI output ports, connected to an HDMI display device such as as a TV or monitor with an HDMI cable.
7	POWER 24V	Connects to a 24V/3.75A power supply.
8	GND	Connects the housing to the ground.

Note:

1. You can restore the factory settings via the front panel, web, or RS-232 command.
2. Power cut memory function is available except for the standby status.
3. The RS-232 and Web will be available within a few minutes after the device is powered on.

LCD Display Navigation

Buttons: INPUT/OUTPUT (1–8), MENU, ENTER, ▲/▼, POWER, FNC
Use to navigate on-screen menus and configure settings.

EDID Presets

#	Resolution	Audio
1	1080p60	2.0Ch
2	1080p60	5.1Ch
3	1080p60	7.1Ch
4	4K30	2.0Ch
5	4K30	5.1Ch
6	4K30	7.1Ch
7	4K60 (4:2:0)	2.0Ch
8	4K60 (4:2:0)	5.1Ch
9	4K60 (4:2:0)	7.1Ch
10	4K60 (4:4:4)	2.0Ch
11	4K60 (4:4:4)	5.1Ch
12	4K60 (4:4:4)	7.1Ch
13	4K30 HDR	2.0Ch
14	4K30 HDR	5.1Ch
15	4K30 HDR	7.1Ch
16	4K60 (4:2:0) HDR	2.0Ch
17	4K60 (4:2:0) HDR	5.1Ch
18	4K60 (4:2:0) HDR	7.1Ch
19	4K60 (4:4:4) HDR	2.0Ch
20	4K60 (4:4:4) HDR	5.1Ch
21	4K60 (4:4:4) HDR	7.1Ch

Custom EDID

#	Option
22–24	User Defined 1–3
25–32	Copy Output 1–8

Output Settings

Video Mode: Bypass / 4K→1080p / Auto / Audio Only
HDR Mode: Bypass / HDR→SDR / Auto

ARC / Stream / AV Mute / Audio Breakout: ON/OFF per Output (1–8)
Audio Source: Embedded Input 1–8
Audio Mode: Follow Input / Output / Matrix
Routing: Output 1–8 → Input 1–8 or ARC ON/OFF

System Settings

LCD Timeout: OFF / 15s / 30s / 60s
Baud Rates: 4800 / 9600 / 19200 / 38400 / 57600 / 115200

Network

Setting	Value
DHCP	ON / OFF
IP Address	192.168.0.100
Subnet	255.255.0.0
Gateway	192.168.0.1

Maintenance

Reboot • Factory Reset • Firmware Update

IR Remote

OFF / ON:

Press to power on or power off the device.

P1/P2/P3/P4/P5/P6/P7/P8:

Press to recall the corresponding saved presets.

HOME / ▲ / ▼ / ◄ / ► / OK:

Press to operate the menu on the LCD screen.

A/F Multifunction Button:

A/F + 1~8: Select input 1~8 to all outputs.

A/F + A/F + 1: Display IP address on LCD screen.

A/F + A/F + 2: Display RS-232 baud rate on LCD screen.

Video Switching

To route video signals:

1. Press OUT + output number (1–8) to select the desired output channel.
2. Then press IN + input number (1–8) to assign the input source.
   Example: Press OUT + 1, then IN + 2 — this routes video from Input 2 to Output 1.

All Outputs:

To send a single input to all outputs simultaneously:

- Press OUT + All, then press IN + [input number].
  Example: Press OUT + All, then IN + 1 — Input 1 is routed to all outputs.

Audio Switching

To route audio independently:

1. Press A/F, then follow the same steps as video switching.
2. Press OUT + [output number], then IN + [input number].
   Example: Press A/F + OUT + 1, then IN + 2 — this routes audio from Input 2 to Output 1.

IR Remote Operation

The matrix can also be controlled using the included IR remote. There are two ways to receive the IR signal:

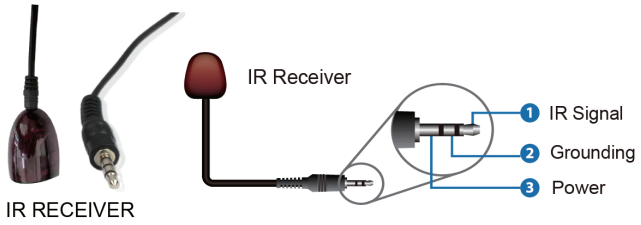
- **Direct IR Reception:** Point the remote directly at the front panel IR window.
  - Maximum range: **8 meters (26 ft)** when aimed directly.
  - Effective angle: **±45°** up to **5 meters (16 ft)**.

Alternative Method:

If the Matrix's built-in IR receiver is blocked or the unit is installed in an enclosed space out of the remote's line of sight, connect the external IR receiver cable to the **IR EXT** port.

For optimal performance:

- Maximum range is **5 meters** when the remote is pointed directly at the IR receiver head.
- Effective range reduces to **3 meters** at an angle of **±45°**.



Web GUI User Guide

The Matrix can be configured and controlled through its built-in Web GUI. Follow the steps below to access the Web GUI:

Step 1: Obtain the Current IP Address

Default IP Address: 192.168.0.100

You can retrieve the Matrix's current IP address using one of the following methods:

Method 1 – Using the Front Panel:

1. On the LCD screen, press the **MENU** button to enter the main menu.
2. Use the **UP/DOWN** buttons to navigate to **SETUP**, then press **ENTER**.
3. Scroll to **NETWORK** and press **ENTER** again.
4. The current IP address will be displayed on screen.
5. If DHCP is available, enable DHCP to automatically obtain an IP address from your Network.

Method 2 – Using RS-232 Control:

1. Connect a PC to the Matrix via RS-232.
2. Open an ASCII command tool and send the command:

```
None
r ipconfig!
```

3. The device will return network configuration details similar to the following:

```
None
IP Mode: Static
IP: 192.168.0.100
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1
TCP/IP Port: 8000
Telnet Port: 23
MAC Address: 00:1C:91:03:80:01
```

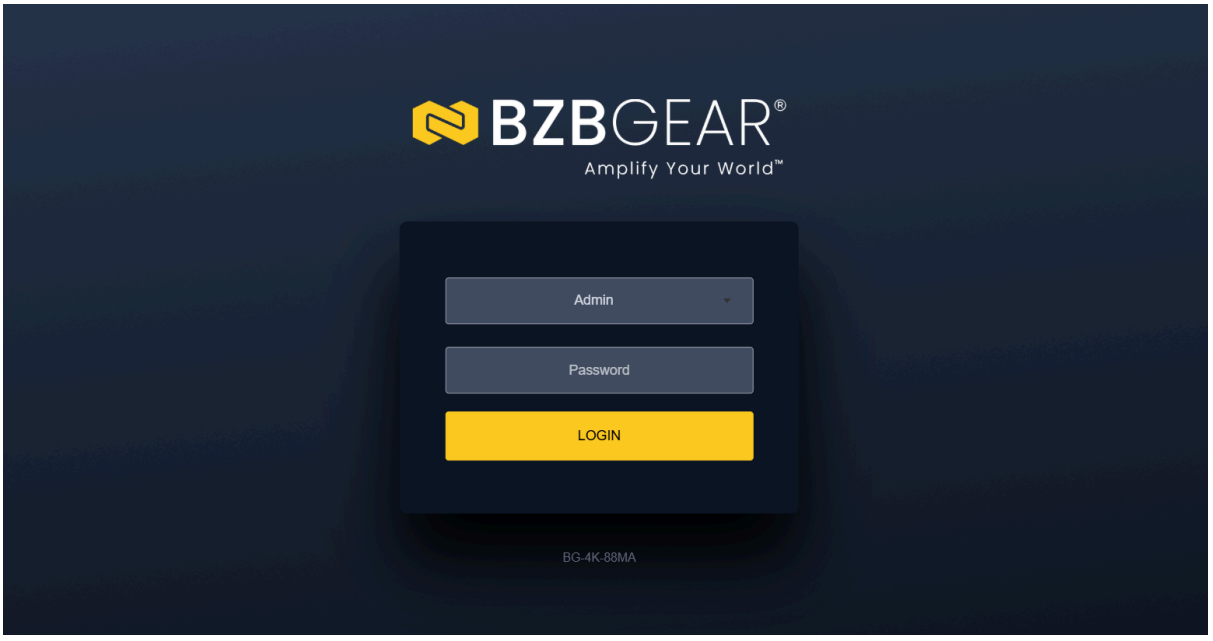
Note: The actual IP address may vary depending on network configuration.
For more RS-232 commands, refer to the “RS-232 Control Command” guide.

Step 2: Connect the Matrix to Your PC

1. Use a standard Ethernet (UTP) cable to connect the Matrix's TCP/IP port to your PC.
2. Configure your PC's IP address to be in the same subnet as the Matrix (e.g., 192.168.0.xxx).

Step 3: Access the Web GUI

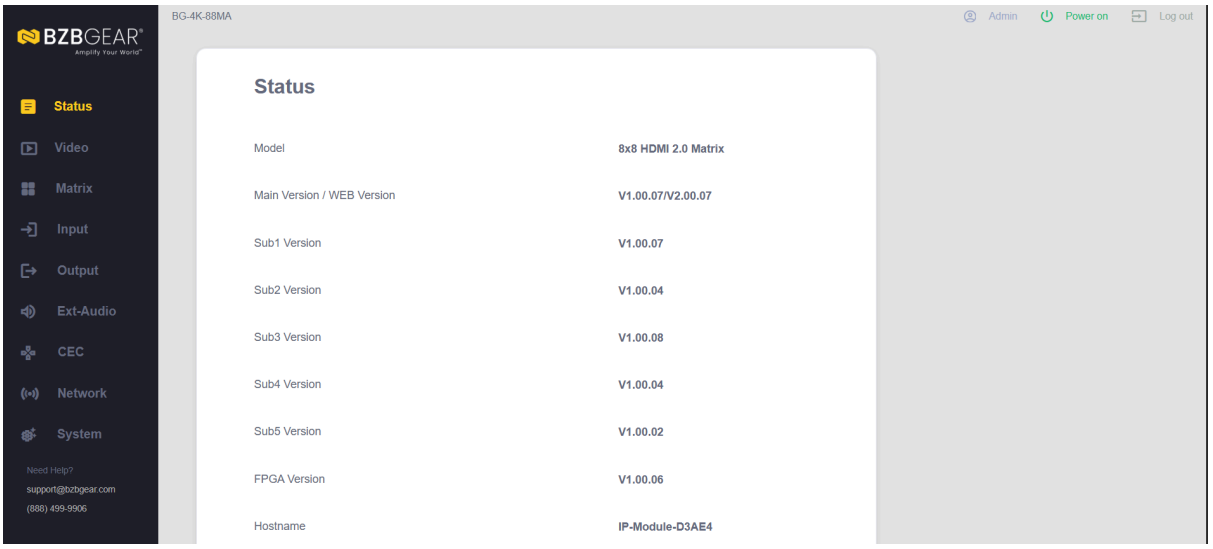
1. Open a web browser on the connected PC.
2. Enter the Matrix's IP address into the address bar (e.g., http://192.168.0.100).
3. The Web GUI login page will appear:



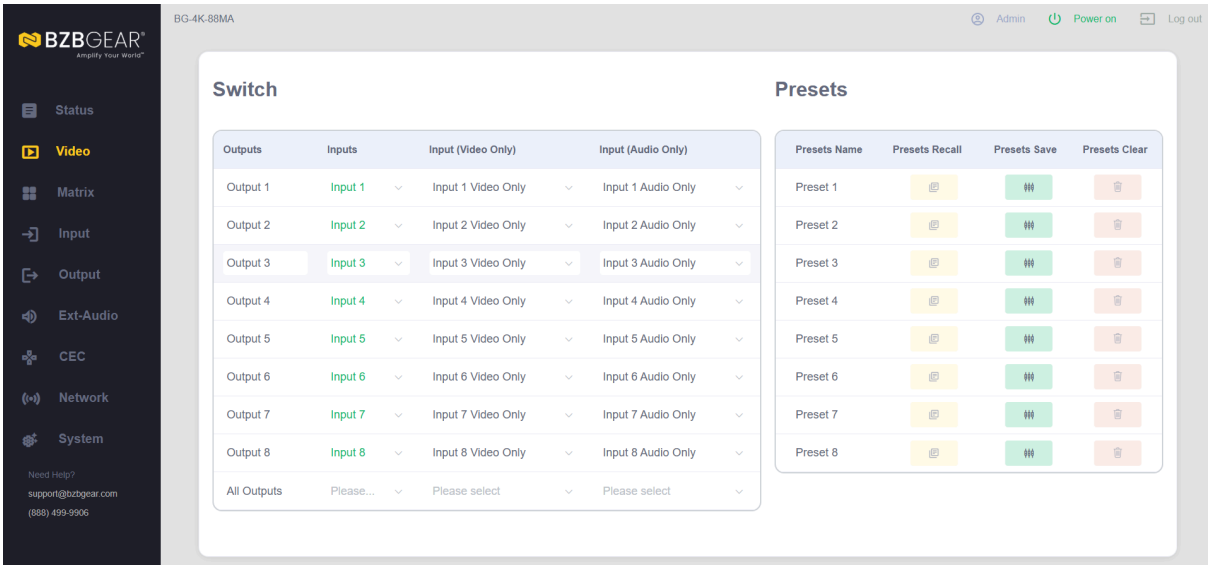
Select the username **"Admin"**, enter the default password **"admin"**, and click the **LOGIN** button. The **Status** page will appear upon successful login.

Status Page

The **Status** page displays essential information about the device, including the model number, installed firmware version, and network settings.



Video Page



① Switch:

Select the input signal source for each output port.

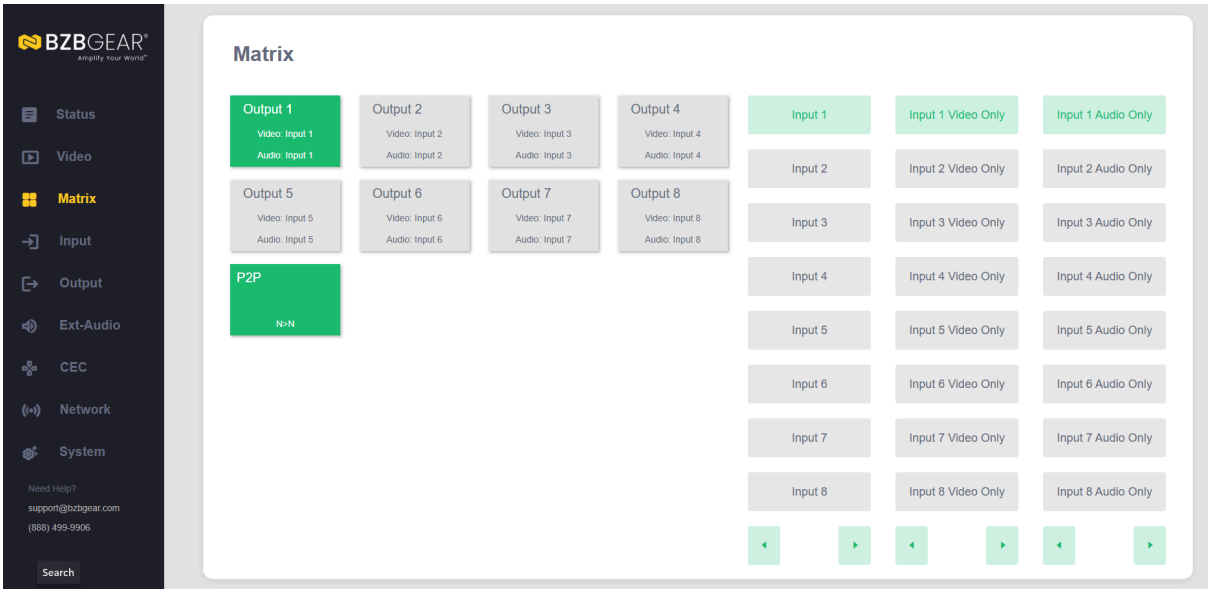
- You can independently assign video and audio from any input channel to an output.

② Presets:

Save, recall, or clear preset configurations.

- Up to **8 presets** can be saved.
- Each preset stores the current mapping between outputs and assigned inputs.
- Example: **Preset 1** saves the mapping of **Output 1** to a selected input channel.
- Use these controls:
    - **Save/Overwrite:** Save the current configuration to a preset.
    - **Clear:** Remove a saved preset.
    - **Recall:** Apply a saved preset instantly.
- Preset names are customizable.

Matrix Page



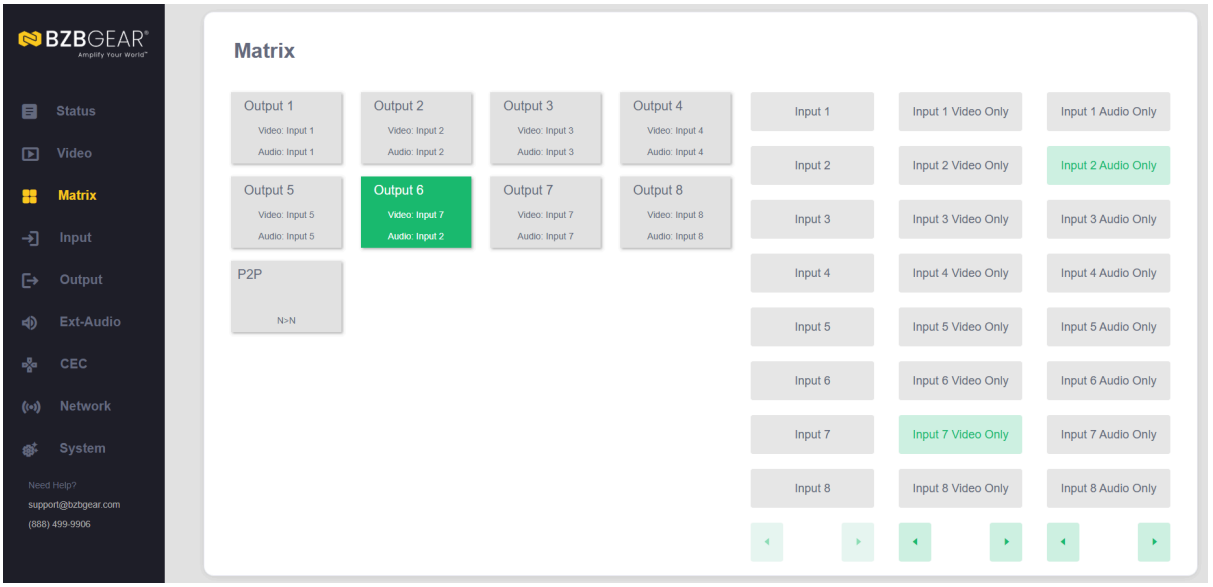
On the **Matrix** page, you can:

- Select an **Output** channel (1–8).
- Assign an **Input** source (1–8) to that output.

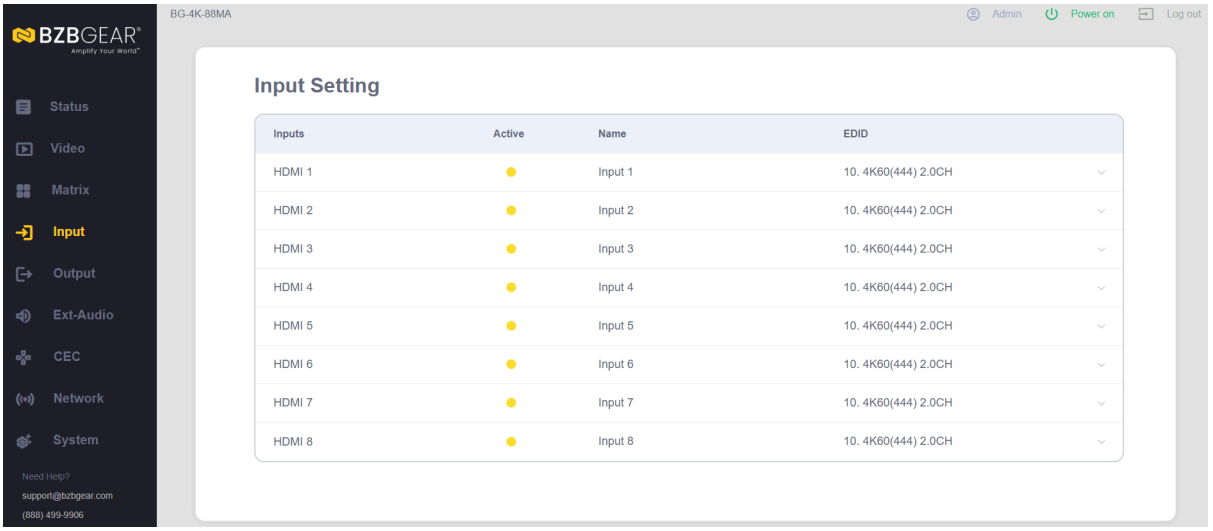
Display names for each **Input** and **Output** can be edited on their respective pages.

Note:

- Video and audio routing are independent. Example: Assign **video from Input 7** and **audio from Input 2** to **Output 2**.
- The **P2P (Point-to-Point)** button resets all connections to match one-to-one: Output 1 to Input 1, Output 2 to Input 2, etc.



Input Page



You can perform the following actions:

1. **Input:** Displays the input channels.

2. **Active:** Indicates signal status:

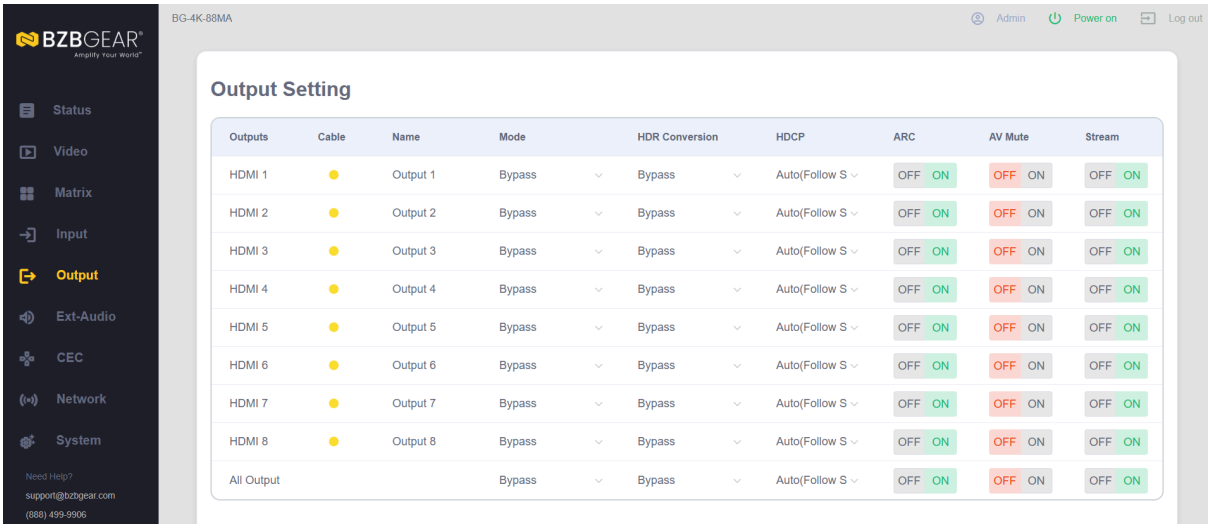
    - **Green**: Connected to a signal source.
    - **Yellow**: No signal detected.

3. **Name:** Rename the input channel (max 32 characters).

4. **EDID:** Shows the current EDID. Select a different EDID from the drop-down menu.

5. **Load EDID to User Memory:**
    - Click **Browse** to select a .bin EDID file.
    - Choose **User Define1/2/3**, and click **Upload**.
    - If an incorrect file is selected, an error message will prompt you to recheck the file.
6. **Download EDID:**
    - Select the input channel.
    - Click **Download** to save the EDID file to your computer.

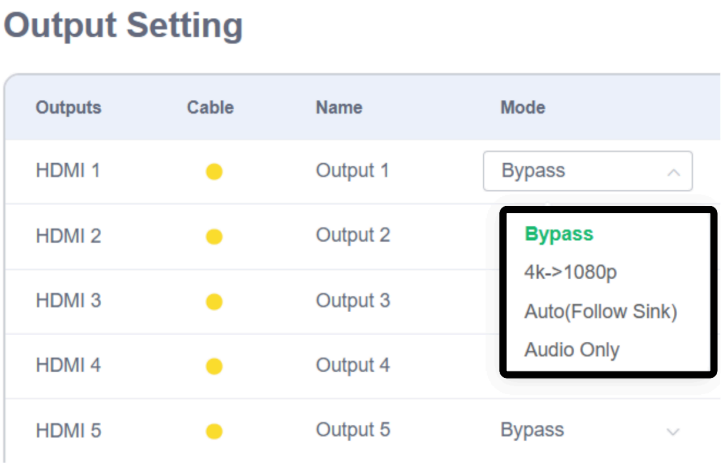
Output Page



The Output page allows you to:

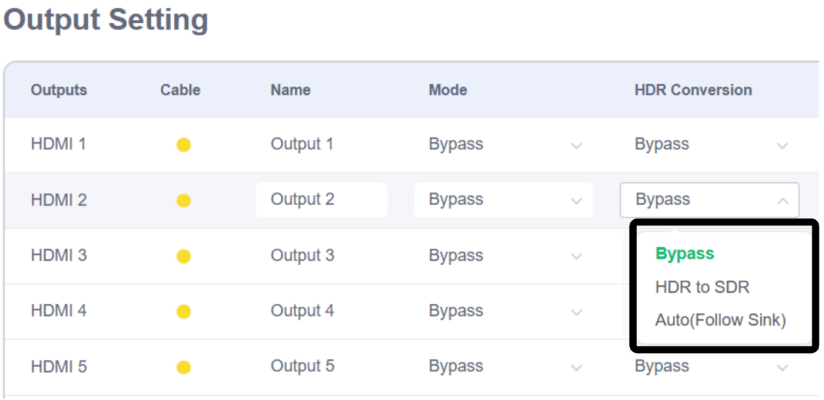
1. **Outputs:** Displays output channels.
    - **All Output:** Apply settings to all outputs at once via the drop-down menu.
2. **Cable:** Shows connection status of each output:
    - **Green**: Connected to a display.
    - **Yellow**: No connection.
3. **Name:** Rename the output channel (max 32 characters).

4. **Mode:** Configure video resolution scaling. Options:



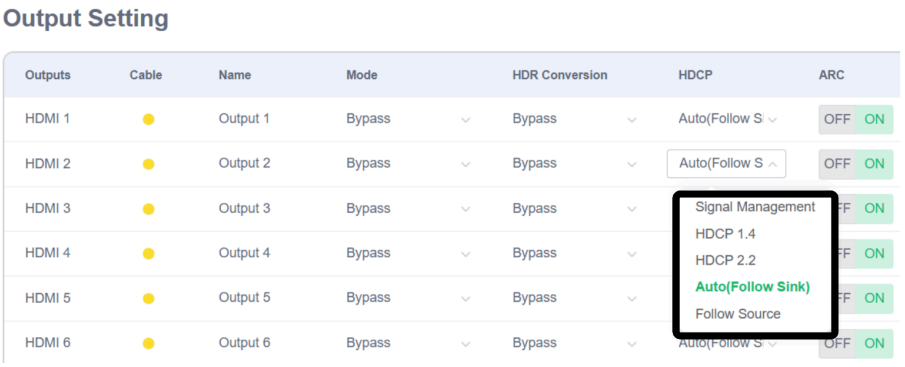
   - **Bypass (Default):** Matches the input source.
   - **4K → 1080p:** Downscale 4K to 1080p.
   - **Auto (Follow Sink):** Matches the display's EDID.
   - **Audio Only:** Outputs only audio.

5. **HDR Conversion:** Configure HDR to SDR conversion. Options:



   - **Bypass:** Matches the input source.
   - **HDR to SDR:** Converts HDR signals to SDR.
   - **Auto (Follow Sink):** Follows the display's EDID.

6. **HDCP:** Configure HDCP compliance. Options:



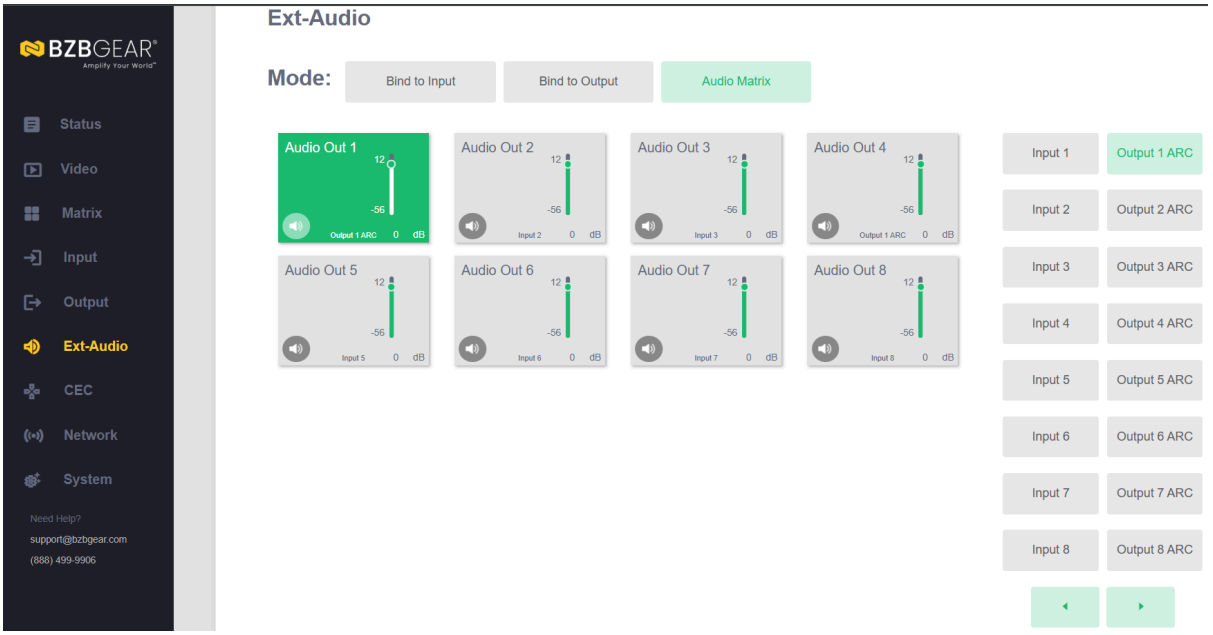
   - **Signal Management:** Reserved.
   - **HDCP 1.4:** Force HDCP 1.4.

- **HDCP 2.2:** Force HDCP 2.2.
- **Auto (Follow Sink):** Matches the display's HDCP version.
- **Follow Source:** Matches the input source's HDCP version.

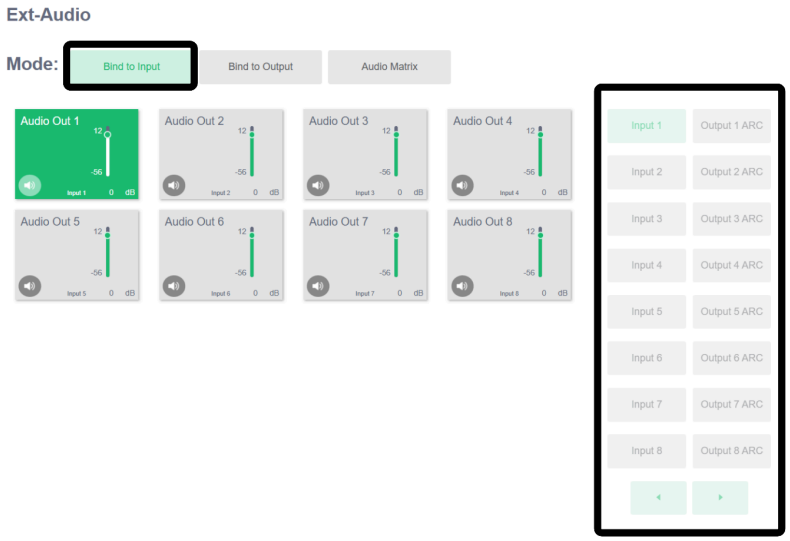
7. **ARC:** Enable/disable the Audio Return Channel (ARC).

8. **Stream:** Enable/disable the output stream.

Ext-Audio Page

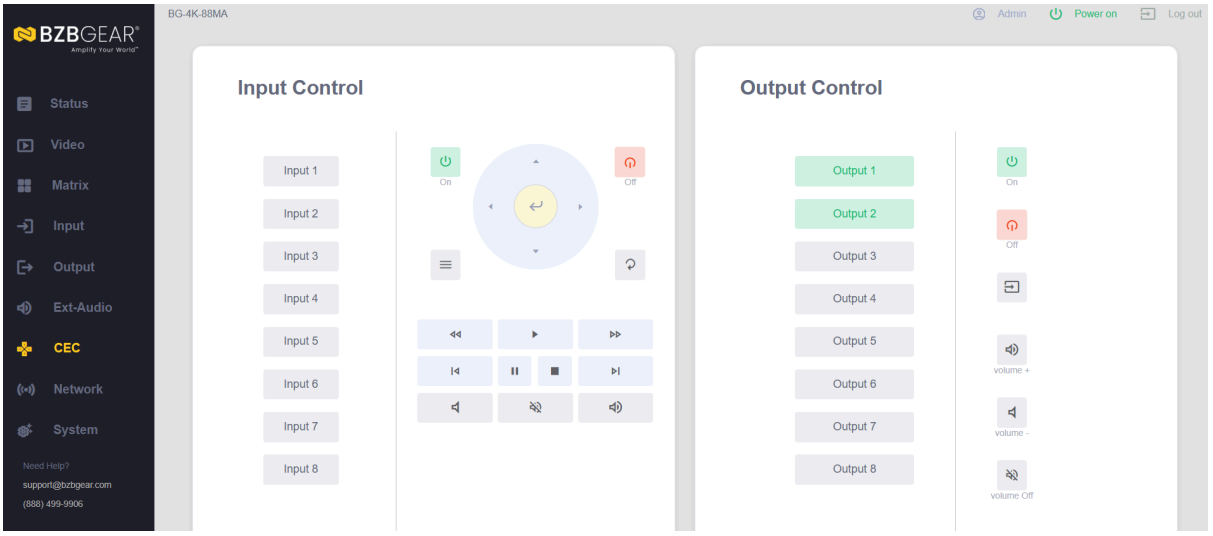


Select the audio routing mode and adjust volume or mute channels:



- **Bind to Input:** Audio follows the input source (1:1 mapping).
    - HDMI input sources and ARC outputs are fixed in this mode.
- **Bind to Output:** Audio follows the assigned HDMI outputs.
    - HDMI inputs and outputs are preassigned.
- **Audio Matrix:** Freely assign audio outputs from any input source or ARC.
    - Select an audio output, then choose an input source or ARC for routing.

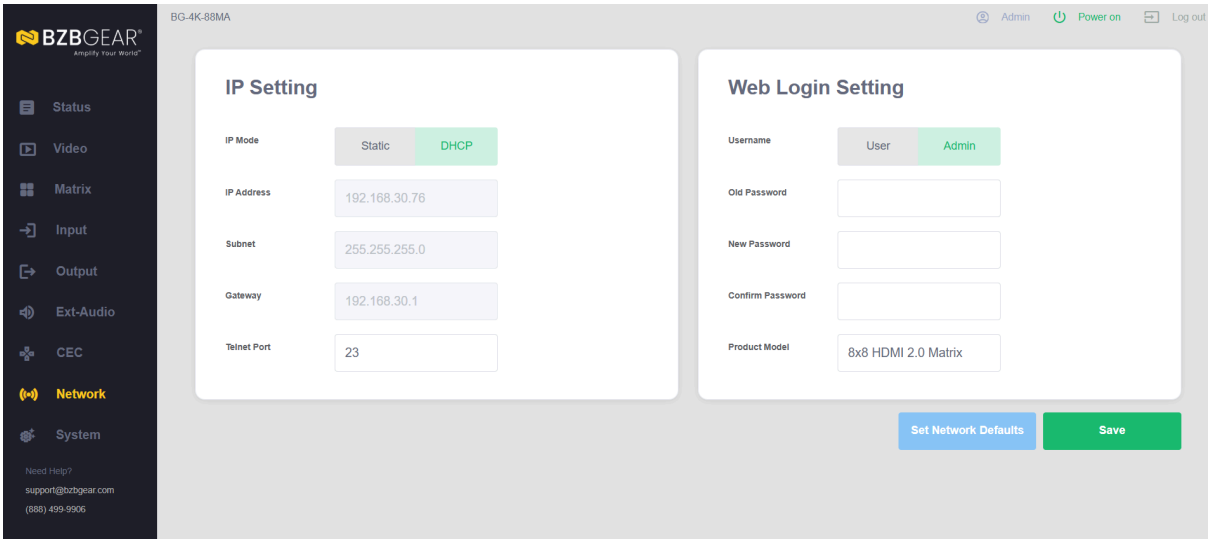
CEC Page



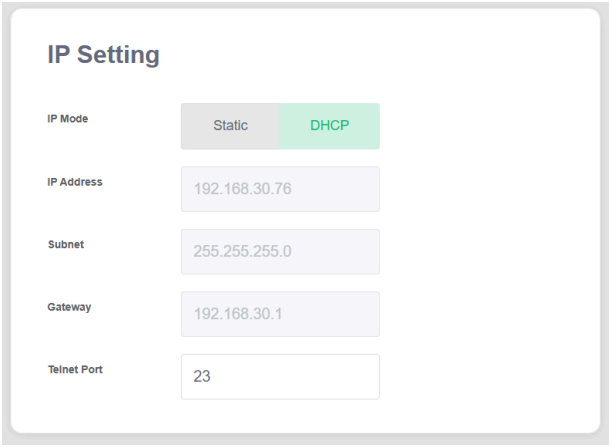
Manage CEC (Consumer Electronics Control) for inputs and outputs.

- **Input Control:** Select an input source and control actions like power on/off, return, switch, pause, fast forward, rewind, mute, etc.
- **Output Control:** Select an output and control the connected display (power on/off, volume adjustments, active source switching, etc.).

Network Page



1. **Modify Network Settings:**



   - Adjust **IP Mode**, **IP Address**, **Gateway**, **Subnet Mask**, and **Telnet Port**.
   - In **Static** mode, settings can be entered manually.
   - In **DHCP** mode, the device automatically receives an IP address from the router.

2. **Change User Password:**

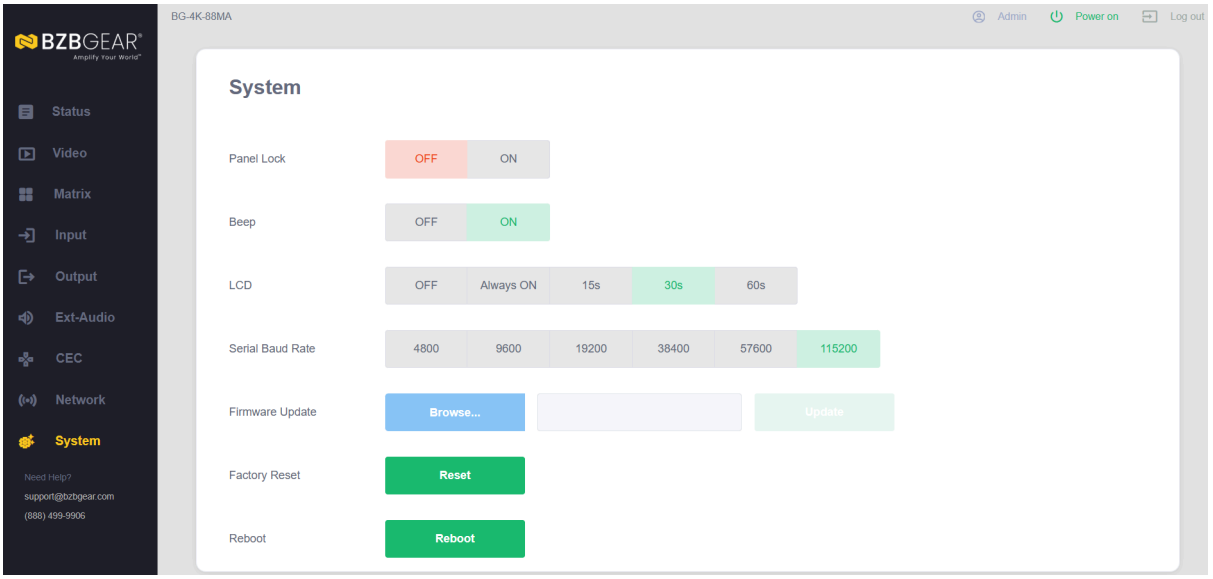
   - Click **User**, enter the **Old Password**, **New Password**, and **Confirm Password**, then click **Save**.
   - Password requirements:

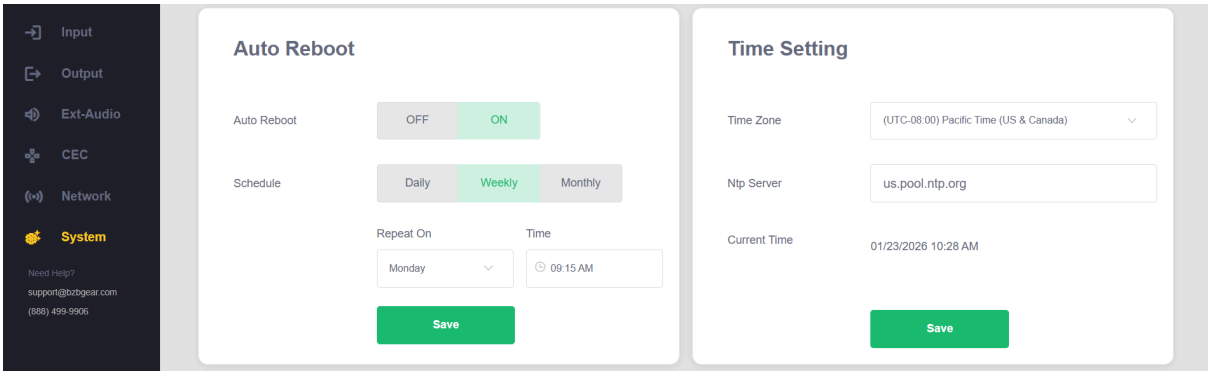
     - Cannot be empty.
     - New Password must differ from the Old Password.
     - New Password and Confirm Password must match.

3. **Reset to Default Network Settings:**

   - Click **Set Network Defaults**, then confirm with **OK**.
   - The device will reboot and return to the default IP settings.

System Page





Perform system-level operations:

1. **Panel Lock:** Enable/disable the front panel buttons.
2. **Beep:** Turn the audible beep on or off.
3. **LCD:** Set the LCD to always on, or turn it off after 15s, 30s, or 60s.
4. **Serial Baud Rate:** Adjust the serial port baud rate.
5. **Firmware Update:** Click **Browse** to select a firmware file, then click **Update**.
6. **Factory Reset:** Restore factory default settings.
7. **Reboot:** Reboot the device.

Note: After a reset or reboot, the unit will return to the login page.

Auto Reboot: The Auto Reboot function allows the BG-4K-44MA to restart automatically on a scheduled basis. Enable or disable the feature, then select a Daily, Weekly, or Monthly reboot schedule. When set to Weekly or Monthly, choose the desired day and time. This feature helps maintain stable operation and is recommended for long-term or continuous-use installations.

RS-232 Control Command

This product supports RS-232 control for remote operation. To use this feature, connect the Matrix's RS-232 control port to a PC using an RS-232 serial cable. Launch a serial command tool on the PC and send ASCII commands to control the Matrix. A complete list of supported ASCII commands is provided below:

ASCII Command				
Serial port protocol. Baud rate: 115200, Data bits: 8, Stop bits:1, Check bit: 0				
TCP/IP protocol port: 8000 Telnet port:23				
x,y,z, XXX are parameters Error Code describe: E00 -> unkown command E01 -> parameter out of range E02 -> get the error EDID data				
Command Code	**Function Description**	**Example**	**Feedback**	**Default**
System Setting				
help!	List all commands	help!		
status!	Get the device's current status	status!	Please refer to the note at the end of the list.	
r type!	Get device model	r type!	8x8 HDMI 2.0 Matrix	
r fw version!	Get Firmware version	r fw version!	BOOT: V1.00.01 MCU: V1.00.01 WEB: V1.00.01 SUB1: V1.00.01 SUB2: V1.00.01 SUB3: V1.00.01 SUB4: V1.00.01 SUB5: V1.00.01 FPGA: V1.00.01	
power z!	Power on/off the device, z=0~1 (z=0 power off, z=1 power on)	power 1!	Power: on System initializing... Initialization finished! BOOT: V1.00.01 MCU: V1.00.01 WEB: V1.00.01	
r power!	Get current power state	r power!	Power: on	
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
r beep!	Get buzzer state	r beep!	Beep: on	

Command Code	Function Description	Example	Feedback	Default
System Setting				
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off, z=1 lock on)	s lock 1!	Button lock: on	Lock off
r lock!	Get panel button lock state	r lock!	Button lock: on	
s ir z!	Set IR on/off, z=0~1(z=0 IR Off, z=1 IR On)	s ir 1!	IR: on	IR on
r ir!	Get IR on/off state	r ir!	IR: on	
s lcd on time z!	Set LCD screen remain on time, z=0~4 (0:Off 1:Always,2:15s,3:30s,4:60s)	s lcd on time 3!	Lcd remain time: 30s	30 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	Lcd remain time: 30s	
s baud x!	Set RS-232 baud rate to x bps x=1: 4800 x=2: 9600 x=3: 19200 x=4: 38400 x=5: 57600 x=6: 115200	s baud 6!	Baud rate: 115200	115200
r baud!	Get RS-232 baud rate	r baud!	Baud rate: 115200	
reboot!	Reboot the device	reboot!	Reboot… 8x8 HDMI 2.0 matrix System initializing... Initialization finished! BOOT: V1.00.01 MCU: V1.00.01 WEB: V1.00.01	
reset!	Reset to factory defaults	reset!	Reset to factory defaults 8x8 HDMI 2.0 Matrix System initializing... Initialization finished! BOOT V1.0.0 MCU V1.0.0 WEB V1.0.0	
r link in x!	Get the connection status of the x input port, x=0~8(0=All)	r link in 1!	HDMI input 1: connect/sync/ disconnect	

Command Code	Function Description	Example	Feedback	Default
System Setting				
r link out y!	Get the connection status of the y output port, y=0~8 (0=All)	r link out 1!	HDMI output 1: connect/ disconnect	
s save preset z!	Save switch state between all output port and the input port to preset z, z=1~8 Only video and audio switching state	s save preset 1!	Preset 1: save	
s recall preset z!	Recall saved preset z scenarios, z=1~8 Only video and audio switching state	s recall preset 1!	Preset 1: recall	
s clear preset z!	Clear stored preset z scenarios, z=1~8 Only video and audio switching state	s clear preset 1!	Preset 1: clear	
r preset z!	Get preset z information, z=1~8 Only video and audio switching state	r preset 1!	Video/audio crosspoint	
s fan x speed y!	Set fan x speed y (x=0~2, 0=All, y=0~4) x=0: All Fans, x=1: Fan 1, x=2: Fan 2 y=0: Auto y=1: 25% y=2: 50% y=3: 75% y=4: 100%	s fan 0 speed 0!	Fan 1 speed: auto Fan 2 speed: auto	0
r fan x speed!	Get fan x speed (x=0~2, 0=All) x=0: All Fans, x=1: Fan 1, x=2: Fan 2	r fan 0 speed!	Fan 1 speed: auto Fan 2 speed: auto	
r temp!	Get device internal temperature	r temp!	65C	
r uptime!	Get device running time (Day:Hour:Min:Sec)	r uptime!	000:00:13:04	
Output Setting				
s output y in source x!	Route input x source to output y (y=0~8, 0=All, x=1~8) x=1~8: Input 1 ~ Input 8 y=0: All Outputs y=1~8: Output 1 ~ Output 8	s output 1 in source 1!	Output 1: input 1	

Command Code	Function Description	Example	Feedback	Default
Output Setting				
r output y in source!	Get output y selected input source (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 in source!	Output 1: input 1	

s output y in audio x!	Route audio x to output y (y=0~8, 0=All, x=0~8) x=0: Current Stream Embedded (Default) x=1~8: Input 1 ~ Input 8 Stream y=0: All Outputs y=1~8: Output 1~Output 8	s output 0 in audio 2!	Output 1 audio: input 2 Output 2 audio: input 2 Output 3 audio: input 2 Output 4 audio: input 2 Output 5 audio: input 2 Output 6 audio: input 2 Output 7 audio: input 2 Output 8 audio: input 2	Current stream embedded
r output y in audio!	Get output y selected audio source (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 0 in source!	Output 1 audio: input 2 Output 2 audio: input 2 Output 3 audio: input 2 Output 4 audio: input 2 Output 5 audio: input 2 Output 6 audio: input 2 Output 7 audio: input 2 Output 8 audio: input 2	
s output y hdcp x!	set output hdcp (y=0~8, x=0~4) y=0: All Outputs y=1~8: Output 1~Output 8 x=0: Signal Management x=1: HDCP 1.4 x=2: HDCP 2.2 x=3: Auto (Follow Sink) x=4: Follow Source	s output 1 HDCP 2!	Output 1 HDCP: HDCP 2.2	Follow sink
r output y hdcp!	Get output y hdcp status (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 hdcp!	Output 1 HDCP: HDCP 2.2	
s output y stream x!	set output y stream enable/disable (y=0~8, 0=All, x=0~1) y=0: All Outputs y=1~8: Output 1~Output 8 x=0: Stream Disable x=1: Stream Enable	s output 1 stream 1!	Output 1 stream: enable	Enable
r output y stream!	Get output y stream status (y=0~8, 0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 stream!	Output 1 stream: enable	

Command Code	Function Description	Example	Feedback	Default
Output Setting				
s output y video mode x!	Set output y port video mode (y=0~8, 0=All, x=1~4) y=0: All Outputs y=1~8: Output 1~Output 8 x=1: Bypass x=2: 4K to 1080P x=3: Auto(Follow Sink) x=4: Audio Only	s output 1 video mode 2!	Output 1 video mode: 4K to 1080P	Bypass
r output y video mode!	Get output y port video mode (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 video mode!	Output 1 video mode: 4K to 1080P	
s output y avmute x!	Set output y avmute on/off (y=0~8, 0=All, x=0~1) y=0: All Outputs y=1~8: Output 1~Output 8 x=0: Off x=1: On	s output 1 avmute 1!	Output 1 avmute: on	Off
r output y avmute!	Get output y avmute status (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 avmute!	Output 1 avmute: on	
s output y hdr x!	Set output y port HDR to SDR mode (y=0~8, 0=All, x=1~3) y=0: All Outputs y=1~8: Output 1~Output 8 x=1: Bypass x=2: HDR to SDR x=3: Auto(Follow Sink)	s output 1 hdr 2!	Output 1 HDR mode: HDR to SDR	Bypass
r output y hdr!	Get output y port HDR to SDR mode (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 hdr!	Output 1 HDR mode: HDR to SDR	
s output y arc x!	Set output y ARC on/off (y=0~8, 0=All, x=0~1) y=0: All Outputs y=1~8: Output 1~Output 8 x=0: Off x=1: On	s output 1 arc 0!	Output 1 arc: off	Off
r output y arc!	Get output y ARC status (y=0~8,0=All) y=0: All Outputs y=1~8: Output 1~Output 8	r output 1 arc!	Output 1 arc: off	

Command Code	Function Description	Example	Feedback	Default
EDID Setting				
s input x EDID z!	Set HDMI input x EDID mode (x=0~8, z=1~32) x=0: All Inputs x=1~8: Input 1 ~ Input 8 z=1: 1080P60 2.0CH z=2: 1080P60 5.1CH z=3: 1080P60 7.1CH z=4: 4K30 2.0CH z=5: 4K30 5.1CH z=6: 4K30 7.1CH z=7: 4K60(420) 2.0CH z=8: 4K60(420) 5.1CH z=9: 4K60(420) 7.1CH z=10: 4K60(444) 2.0CH z=11: 4K60(444) 5.1CH z=12: 4K60(444) 7.1CH z=13: 4K30_HDR 2.0CH z=14: 4K30_HDR 5.1CH z=15: 4K30_HDR 7.1CH z=16: 4K60(420)_HDR 2.0CH z=17: 4K60(420)_HDR 5.1CH z=18: 4K60(420)_HDR 7.1CH z=19: 4K60(444)_HDR 2.0CH z=20: 4K60(444)_HDR 5.1CH z=21: 4K60(444)_HDR 7.1CH z=22: User Defined 1 z=23: User Defined 2 z=24: User Defined 3 z=25: Copy Output 1 z=26: Copy Output 2 z=27: Copy Output 3 z=28: Copy Output 4 z=29: Copy Output 5 z=30: Copy Output 6 z=31: Copy Output 7 z=32: Copy Output 8	s input 1 EDID 10!	Input 1 EDID: 4K60(444) 2.0CH	4K60(444) 2.0CH
r input x EDID!	Get input x EDID mode(x=0~8,0=All) x=0: All Inputs x=1~8: Input 1 ~ Input 8	r input 1 EDID!	Input 1 EDID: 4K60(444) 2.0CH	
s user x edid 00 FF FF …!	Set user x EDID data (x=1~3) x=1: User Defined 1 x=2: User Defined 2 x=3: User Defined 3	s user 1 edid 00 FF FF FF FF …!	User 1 EDID data: 00 FF FF FF FF FF FF 00 ……	
r user x edid!	Get user x EDID data (x=1~3) x=1: User Defined 1 x=2: User Defined 2 x=3: User Defined 3	r user 1 edid!	User 1 EDID data: 00 FF FF FF FF FF FF 00 ……	

Command Code	Function Description	Example	Feedback	Default
Ext-audio Setting				
s output exa mode x!	Set ext-audio mode (x=0~2) x=0: Follow Input x=1: Follow Output x=2: Matrix Mode	s output exa mode 0!	Ext-audio mode: follow input	Follow input
r output exa mode!	Get output ext-audio mode	r output exa mode!	Ext-audio mode: follow input	
s output y exa in source x!	Route input source audio to ext-audio (y=0~8, 0=All, x=1~16) y=0: All Ext-audio Outputs y=1~8: Ext-audio 1 ~ Ext-audio 8 x=1~8: Input 1 ~ Input 8 x=9~16: Output 1 ARC ~ Output 8 ARC	s output 1 exa in source 1!	Ext-audio 1: input 1	Ext-audio 1 -> input1
r output y exa in source!	Get output y ext-audio selected input source(y=0~8, 0=All) y=0: All Ext-audio Outputs y=1~8: Ext-audio 1 ~ Ext-audio 8	r output 0 exa in source!	Ext-audio 1: input 1 Ext-audio 2 :input 2 Ext-audio 3: input 3 Ext-audio 4: input 4 Ext-audio 5: input 5 Ext-audio 6: input 6 Ext-audio 7: input 7 Ext-audio 8: input 8	
s output y exa analog gain x!	Set output y ext-audio analog gain x db (y=0~8, 0=All, x=-56~+12dB) y=0: All Ext-audio Analog Outputs y=1~8: Ext-audio Analog 1 ~ Ext-audio Analog 8 x=[-56…+12]dB: 1dB Step	s output 0 exa analog gain 0!	Ext-audio analog 1 gain: 0dB Ext-audio analog 2 gain: 0dB Ext-audio analog 3 gain: 0dB Ext-audio analog 4 gain: 0dB Ext-audio analog 5 gain: 0dB Ext-audio analog 6 gain: 0dB Ext-audio analog 7 gain: 0dB Ext-audio analog 8 gain: 0dB	0dB
r output y exa analog gain!	Get output y ext-audio analog gain (y=0~8, 0=All) y=0: All Ext-audio Analog Outputs y=1~8: Ext-audio Analog 1 ~ Ext-audio Analog 8	r output 1 exa analog gain!	Ext-audio analog 1 gain: 0dB	

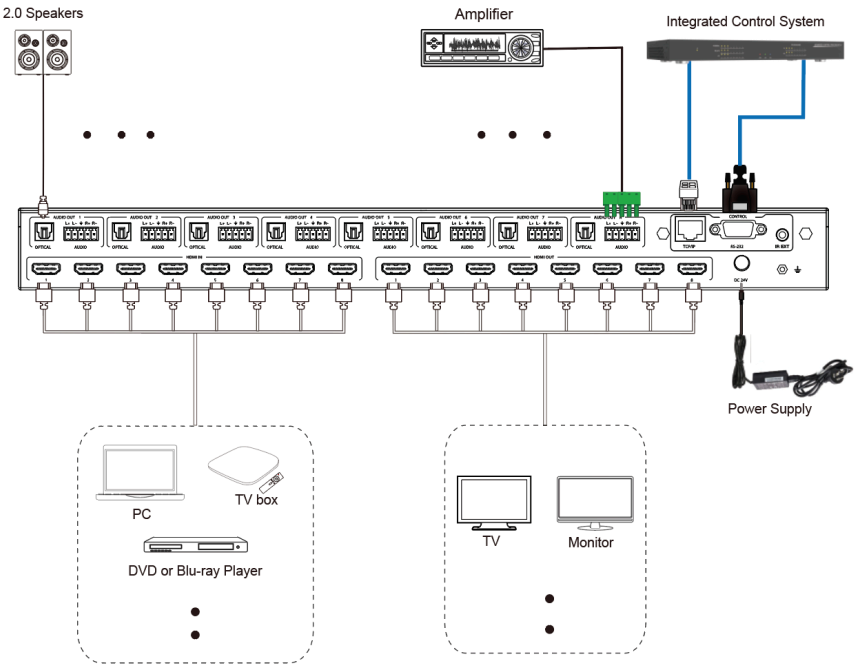
Command Code	Function Description	Example	Feedback	Default
Ext-audio Setting				
s output y exa mute x!	Set output y ext-audio mute on/off (y=0~8, 0=All, x=0~1) y=0: All Ext-audio Outputs y=1~8: Ext-audio 1 ~ Ext-audio 8 x=0: Off x=1: On	s output 0 exa mute 1!	Ext-audio 1 mute: on Ext-audio 2 mute: on Ext-audio 3 mute: on …… Ext-audio 8 mute: on	Off
r output y exa mute!	Get output y ext-audio mute on/off state (y=0~8, 0=All) y=0: All Ext-audio Outputs y=1~8: Ext-audio 1 ~ Ext-audio 8	r output 1 exa mute!	Ext-audio 1 mute: on	
CEC Setting				
s cec in x on!	Set input x power on by CEC, x=0~8 (0=all input)	s cec in 1 on!	HDMI input 1 CEC: power on	
s cec in x off!	Set input x power off by CEC, x=0~8 (0=all input)	s cec in 1 off!	HDMI input 1 CEC: powe off	
s cec in x menu!	Set input x open menu by CEC, x=0~8 (0=all input)	s cec in 1 menu!	HDMI input 1 CEC: open menu	
s cec in x back!	Set input x back operation by CEC, x=0~8 (0=all input)	s cec in 1 back!	HDMI input 1 CEC: back operation	
s cec in x up!	Set input x menu up operation by CEC, x=0~8 (0=all input)	s cec in 1 up!	HDMI input 1 CEC: menu up operation	
s cec in x down!	Set input x menu down operation by CEC, x=0~8 (0=all input)	s cec in 1 down!	HDMI input 1 CEC: menu down operation	
s cec in x left!	Set input x menu left operation by CEC, x=0~8 (0=all input)	s cec in 1 left!	HDMI input 1 CEC: menu left operation	
s cec in x right!	Set input x menu right operation by CEC, x=0~8 (0=all input)	s cec in 1 right!	HDMI input 1 CEC: menu right operation	
s cec in x enter!	Set input x menu enter by CEC, x=0~8 (0=all input)	s cec in 1 enter!	HDMI input 1 CEC: menu enter operation	
s cec in x play!	Set input x play by CEC, x=0~8 (0=all input)	s cec in 1 play!	HDMI input 1 CEC: play operation	

Command Code	Function Description	Example	Feedback	Default
CEC Setting				
s cec in x pause!	Set input x pause by CEC, x=0~8 (0=all input)	s cec in 1 pause!	HDMI input 1 CEC: pause operation	
s cec in x stop!	Set input x stop by CEC, x=0~8 (0=all input)	s cec in 1 stop!	HDMI input 1 CEC: stop operation	
s cec in x rew!	Set input x rewind by CEC, x=0~8 (0=all input)	s cec in 1 rew!	HDMI input 1 CEC: rewind operation	
s cec in x mute!	Set input x volume mute by CEC, x=0~8 (0=all input)	s cec in 1 mute!	HDMI input 1 CEC: volume mute	
s cec in x vol-!	Set input x volume down by CEC, x=0~8 (0=all input)	s cec in 1 vol-!	HDMI input 1 CEC: volume down	
s cec in x vol+!	Set input x volume up by CEC, x=0~8 (0=all input)	s cec in 1 vol+!	HDMI input 1 CEC: volume up	
s cec in x ff!	Set input x fast forward by CEC, x=0~8 (0=all input)	s cec in 1 ff!	HDMI input 1 CEC: fast forward operation	
s cec in x previous!	Set input x previous by CEC, x=0~8 (0=all input)	s cec in 1 previous!	HDMI input 1 CEC: previous operation	
s cec in x next!	Set input x next by CEC, x=0~8 (0=all input)	s cec in 1 next!	HDMI input 1 CEC: next operation	
s cec hdmi out y on!	Set hdmi output y power on by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 on!	HDMI output 1 CEC: power on	
s cec hdmi out y off!	Set hdmi output y power off by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 off!	HDMI output 1 CEC: power off	
s cec hdmi out y mute!	Set hdmi output y volume mute by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 mute!	HDMI output 1 CEC: volume mute	
s cec hdmi out y vol-!	Set hdmi output y volume down by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 vol-!	HDMI output 1 CEC: volume down	
s cec hdmi out y vol+!	Set hdmi output y volume up by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 vol+!	HDMI output 1 CEC: volume up	
s cec hdmi out y active!	Set hdmi output y active source by CEC, y=0~8 (0=all hdmi output)	s cec hdmi out 1 active!	HDMI output 1 CEC: active source	

Command Code	Function Description	Example	Feedback	Default
Network Setting				
r ipconfig!	Get the Current IP Configuration	r ipconfig!	IP mode: DHCP IP address: 192.168.62.106 Subnet mask: 255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 Telnet port: 23 MAC address: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1) - Only display in DHCP mode	
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 192.168.0.100!	Set IP address: 192.168.0.100 (Please use "s net reboot!" command 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: 192.168.0.100	
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 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 192.168.0.1!	Set gateway: 192.168.0.1 (Please use "s net reboot!" command to apply new config!) DHCP on, Device can't config gateway, set DHCP off first.	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.0.1	
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	

Command Code	Function Description	Example	Feedback	Default
Network Setting				
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… Search for IP,please wait ...! IP mode: DHCP IP address: 192.168.62.106 Subnet mask: 255.255.255.0 Gateway: 192.168.62.1 TCP/IP port: 8000 Telnet port: 23 MAC address: 6C:DF:FB:0C:B3:8E (Static: 169.254.100.200 255.255.0.0 169.254.100.1) - Only display in DHCP mode	

Connection 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**

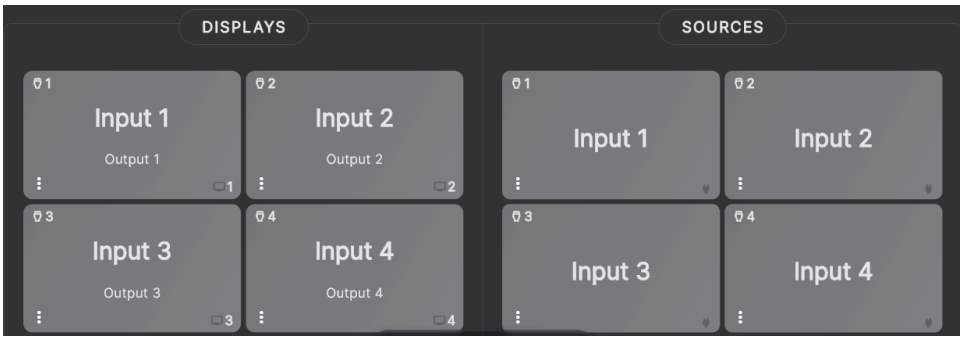
- All control devices must be connected to the **same local network** as the matrix switcher.

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

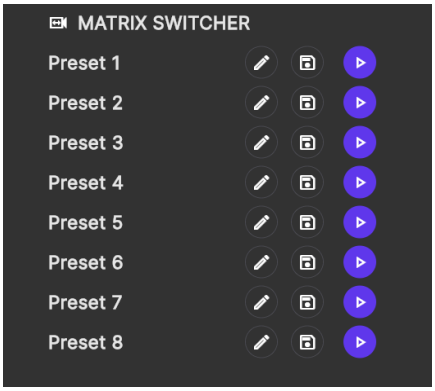
Matrix Switching



- 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**.

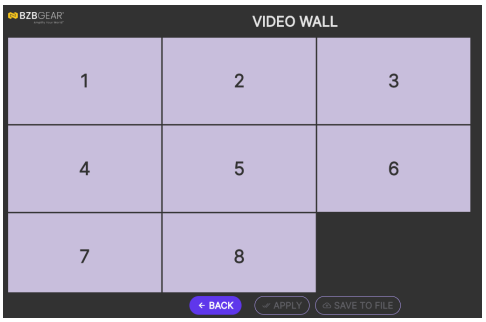
Preset Management

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

Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player`s audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).

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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