BZBGEAR®
Amplify Your World™

BG-4K-44MA

4x4 4K UHD HDMI 2.0 Matrix Switcher with Audio De-embedding/Independent Routing and IR Matrixing (4K60 - 4:4:4 and HDR Support)

User Manual

TABLE OF CONTENTS

Statement

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

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGEAR is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.

Introduction

The BG-4K-44MA 4K 4x4 HDMI™ Matrix delivers high-performance video and multi-channel digital audio routing from up to four HDMI™ sources to four HDMI™ displays, supporting resolutions up to 4K2K@60Hz 4:4:4 with full 18 Gbps bandwidth. Designed for maximum flexibility, it allows independent routing of video and audio, supports HDMI™ audio de-embedding and ARC extraction to analog and optical outputs, and features per-output 4K-to-1080p downscaling without frame rate conversion. With support for HDR formats including HDR10, HDR10+, Dolby Vision LLM, and HLG, along with smart EDID management, CEC, and HDCP 2.2 compliance, this matrix ensures reliable compatibility across modern AV systems. Control is simple and versatile via the front panel LCD and buttons, IR remote, RS-232, LAN, or Web GUI, all housed in a professional 1U rack-mountable chassis.

Features

- **HDCP 2.2 Compliance:** Ensures secure playback of protected content and full compatibility with modern HDMI™ sources and displays.
- **18 Gbps High-Bandwidth Performance:** Supports full-bandwidth HDMI™ transmission for uncompressed, high-quality video and audio signals.
- **True 4K UHD Resolution Support:** Delivers resolutions up to 4K2K@60Hz 4:4:4 in accordance with HDMI™ 2.0b specifications for crisp, detailed visuals.
- **Advanced HDR Pass-Through:** Supports HDR, HDR10, HDR10+, Dolby Vision LLM, and HLG for enhanced contrast, color accuracy, and dynamic range.
- **Independent Video & Audio Routing:** Allows video and audio signals to be routed separately for flexible system configuration and integration.
- **Per-Output Downscaling:** Built-in 4K/2K to 1080p downscaling on each HDMI™ output without frame rate conversion for seamless mixed-resolution setups.
- **High-Definition Audio Support:** Handles HDMI™ audio formats up to 7.1-channel HD audio for immersive sound reproduction.
- **Flexible Audio De-Embedding:** Extracts audio from HDMI™ inputs or ARC-enabled HDMI™ outputs to analog L/R and digital optical audio ports.
- **ARC, CEC & Smart EDID Management:** Enhances system compatibility and simplifies control through automatic EDID handling and device communication.
- **Multiple Control Options:** Easily manage the matrix via front panel buttons, IR remote, RS-232, LAN, or intuitive Web GUI.
- **Professional Rack-Mount Design:** 1U rack-mountable chassis with an integrated front-panel LCD display for clear status monitoring and control.

Packing List

- **1× BG-4K-44MA**
- **1× 24V/2A Power Adapter** (US plug included)
- **1× IR Remote Control**
- **5× IR Blaster Cables** (1.5 m each)
- **6× IR Wideband Receiver Cables** (1.5 m each)
- **1× RS-232 Serial Cable** (1.5 m, male-to-female)
- **4× 5-Pin to 3.5 mm Phoenix Connectors**
- **8× Mounting Screws** (KM3 × 6)
- **2× Rack Mounting Ears**
- **1× User Manual**

Specifications

Video Specifications	
HDMI™ Compliance	HDMI™ 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Up to 4K60Hz 4:4:4
	Please see all supported resolutions in the chart below
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)
Connection	
Input ports	4× INPUT [HDMI™ Type A, 19-pin female]
	4× IR IN [3.5mm audio jack]
Output ports	4× OUTPUT [HDMI™ Type A, 19-pin female]
	4× OPTICAL AUDIO OUT
	4× L/R AUDIO OUT [5-pin phoenix connector]
	4× IR OUT [3.5mm audio jack]
Control ports	
	1 × TCP/IP [RJ45]
	1 × RS-232 [D-Sub9]
	1 × IR EXT [3.5mm audio jack]

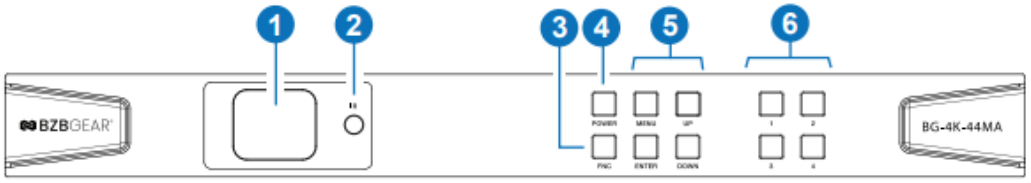
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	440mm [W] × 206mm [D] × 44.5mm [H]
Weight	3.1kg
Power Supply	Input: AC 100 - 240V 50/60Hz, Output: DC 24V/2A (US/EU standard, CE/FCC/UL certified)
Power Consumption	27.4W (Max)
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
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
HDMI™ Cable Requirements	
HDMI™ Cable Length (IN / OUT)	4K60: 5m/16ft 4K30: 10m/33ft 1080P: 15m/49ft
Recommendation	The use of “Premium High Speed HDMI™” cable is highly recommended.

Support Resolution and Refresh Rates

Resolution Category	Supported Resolutions & Refresh Rates
PC / VESA	640×480p60, 800×600p60, 1024×768p60, 1280×1024p60, 1360×768p60, 1440×900p60, 1440×1050p60, 1600×1200p60
SD	720×480i/p59.94, 720×576i/p50
HD (720p)	1280×720p50/59.94/60
Full HD (1080)	1920×1080i50/59.94/60, 1920×1080p23.98/24/25/29.97/30/50/59.94/60
UHD (3840×2160)	2160p23.98/24/25/29.97/30/50/59.94/60
DCI 4K (4096×2160)	23.98/24/25/29.97/30/50/59.94/60

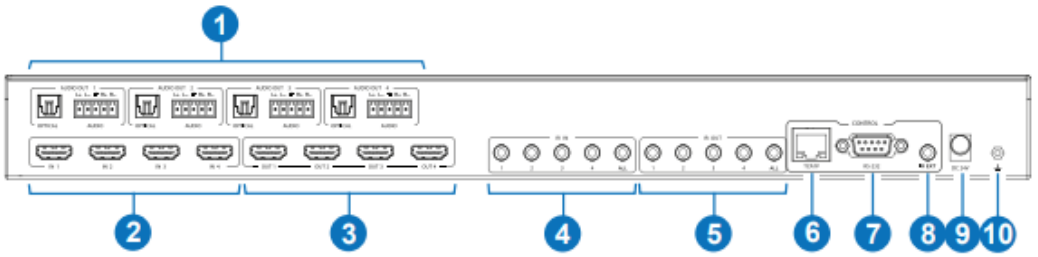
Operation Controls and Functions

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. Receives the signal from the IR remote.
3	FNC	**Multi-function button.**• FNC + Number (1~4): Select the input source for all output channels. Number (1~4) represents the input source (1~4). • FNC + FNC + 1: Display IP address. • FNC + FNC + 2: Display the baud rate of the serial port. **Note:** The information above will disappear automatically after 3 seconds.
4	POWER button & indicator light	Press the button to power on the device; the indicator light turns blue. Long-press the button for 3 seconds to enter standby mode; the indicator light turns red.
5	MENU / ENTER / UP / DOWN	**Screen operation buttons (example: RESET):** ① On the initial LCD display screen, press the “MENU” button. ② Select from OUTPUT SETTINGS / INPUT SETTINGS / AUDIO BREAKOUT / SETUP / FIRMWARE using the UP/DOWN buttons. ③ Press “ENTER” to enter the next level. ④ Select SETUP, then choose from LCD ONTIME / BAUDRATE / NETWORK / REBOOT / RESET. ⑤ Select RESET and press “ENTER” to confirm. ⑥ Press “FNC” to continue, or “MENU” to return. **Note:** Pressing “MENU” returns to the previous menu on any page.
6	INPUT / OUTPUT (1~4) buttons	Press a number (1~4) to select an output channel first, then press a number (1~4) to select the corresponding input source.

Rear Panel



NO.	Name	Function Description
1	AUDIO OUTPUTS (1~4)	**OPTICAL:** Optical audio output port, connects to an audio output device such as an amplifier. **L/R AUDIO:** Analog audio output port supporting balanced/unbalanced audio output, with a maximum output level of 2Vrms. • **Balanced connection:** L+, L–, R+, R– • **Unbalanced connection:** L+, R+
2	INPUTS (1~4)	HDMI signal input ports. Connect to HDMI source devices such as an 8K computer, DVD player, or set-top box using HDMI cables.
3	OUTPUTS (1~4)	HDMI signal output ports. Connect to HDMI display devices such as TVs or monitors using HDMI cables.
4	IR IN (1~4)	Connects to a 12V wideband IR receiver cable. Supports IR signal pass-through.
5	IR OUT (1~4)	Connects to an IR blaster cable. Supports IR signal pass-through.
6	TCP/IP	TCP/IP control port. Connects to a PC or router using an RJ45 cable.
7	RS-232 port	Connects to a PC or control system for matrix control.
8	IR EXT	Connects to a 12V wideband IR receiver cable. If the unit's IR receiver window is blocked or the unit is installed in a closed area without direct infrared line-of-sight, connect an external IR receiver to this port to receive IR remote signals.
9	DC 24V	Connects to a 24V/2A power supply.
10	GND	Connect the unit housing to ground.

Note:

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

LCD Display Navigation

The buttons on the front panel are used for navigating the LCD, including INPUT/OUTPUT (1~4), MENU, ENTER, UP, DOWN, POWER, and FNC. Menu contents are as follows:

Level 1	Level 2	Level 3	Level 4 / Options
INPUT	SETTINGS	EDID (Input 1/2/3/4)	1080P60 2.0CH / 5.1CH / 7.1CH4K30 2.0CH / 5.1CH / 7.1CH 4K60 (4:2:0) 2.0CH / 5.1CH / 7.1CH 4K60 (4:4:4) 2.0CH / 5.1CH / 7.1CH 4K30_HDR 2.0CH / 5.1CH / 7.1CH 4K60 (4:2:0)_HDR 2.0CH / 5.1CH / 7.1CH 4K60 (4:4:4)_HDR 2.0CH / 5.1CH / 7.1CH User Defined 1 / 2 / 3Copy Output 1 / 2 / 3 / 4
OUTPUT	SETTINGS	MODE (Output 1/2/3/4)	BYPASS / 4K to 1080P / AUTO / AUDIO ONLY
	SETTINGS	HDR (Output 1/2/3/4)	BYPASS / HDR to SDR / AUTO
	SETTINGS	ARC (Output 1/2/3/4)	ON / OFF
	SETTINGS	STREAM (Output 1/2/3/4)	ON / OFF
	SETTINGS	AV MUTE (Output 1/2/3/4)	ON / OFF
	SETTINGS	AUDIO OUTPUT (Output 1/2/3/4)	EMBEDDED / INPUT 1~4 / BREAKOUT / ON / OFF
	SETTINGS	MODE	FOLLOW INPUT / FOLLOW OUTPUT / MATRIX
	SETTINGS	MATRIX (Output 1/2/3/4)	INPUT 1 / 2 / 3 / 4OUTPUT 1 ARC / 2 ARC / 3 ARC / 4 ARC
SETUP	LCD ONTIME		OFF / ALWAYS ON / 15s / 30s / 60s
	BAUDRATE		4800 / 9600 / 19200 / 38400 / 57600 / 115200

	NETWORK	DHCP	ON / OFF
	NETWORK	IP Address	192.168.0.100
	NETWORK	Subnet Mask	255.255.0.0
	NETWORK	Gateway	192.168.0.1
	SYSTEM	REBOOT	/
	SYSTEM	RESET	/
	SYSTEM	FIRMWARE UPDATE	/

IR Remote Guide

1. Power Control

- **OFF / ON**: Press to power the device on or off.

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2. Preset Recall

- **P1 / P2 / P3 / P4**: Press to recall the corresponding saved presets.
- **Note:** Buttons P5–P0 (P5/P6/P7/P8/P9/0) are **not available** on this model.

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3. Menu Navigation

- **Buttons:** HOME / ▲ / ▼ / ◄ / ► / OK
- **Function:** Use these buttons to navigate and operate the menu on the LCD screen.

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4. A/F Multifunction Button

The **A/F button** provides multiple functions:

1. **A/F + 1~4**: Select input 1~4 to all outputs.
2. **A/F + A/F + 1**: Display the device's IP address on the LCD screen.
3. **A/F + A/F + 2**: Display the RS-232 baud rate on the LCD screen.

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5. Video Switching

- **Command Format:** OUT + number (1~4) → IN + number (1~4)
- **Usage:**
  1. Press OUT + the output number to select the output channel.
  2. Press IN + the input number to select the input source.
- **Example:**
  OUT + 1, then IN + 2 → Video from IN 2 outputs to OUT 1.
- **All Outputs:**
  OUT + All, then IN + 1 → Input 1 outputs to all connected displays simultaneously.

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6. Audio Switching

- **Command Format:** A/F + OUT + number (1~4) → IN + number (1~4)
- **Usage:**
  1. Press A/F, then OUT + number to select the output channel.
  2. Press IN + number to select the input source.
- **Example:**
  A/F + OUT + 1, then IN + 2 → Audio from IN 2 outputs to OUT 1.

IR Remote Signal Reception Methods

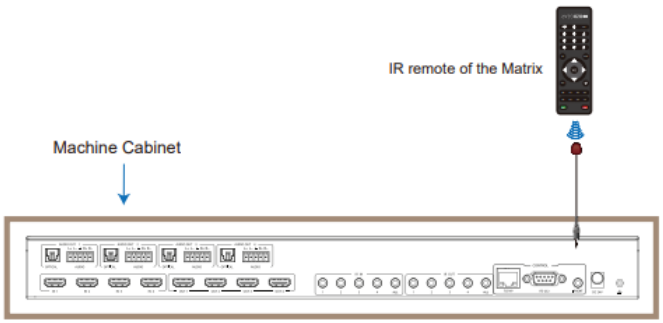
The matrix can be controlled using the included IR remote in two ways:

Method 1: Built-in IR Receiver

The front-panel IR window receives signals directly from the IR remote.

- Maximum operating distance: **up to 8 meters** when the remote is aimed directly at the matrix
- Operating distance at a 45° angle: **up to 5 meters**
  Refer to the diagram below for the effective IR range.

Method 2: External IR Receiver (IR EXT Port)

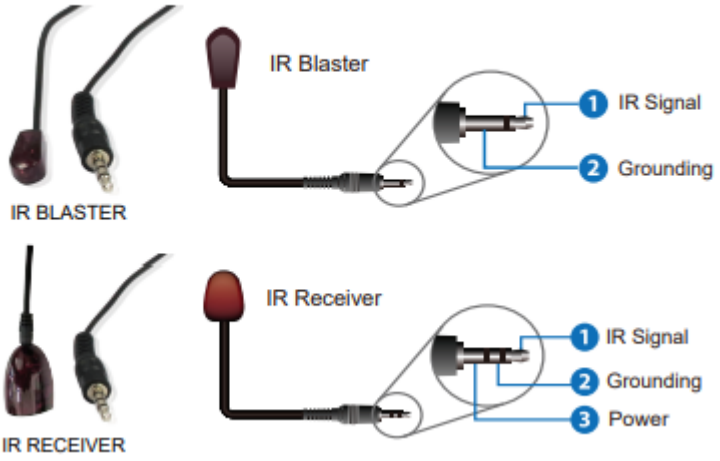


If the matrix's IR window is obstructed or the unit is installed in an enclosed area without a

clear infrared line of sight, an external IR receiver cable can be connected to the **IR EXT** port.

- Maximum operating distance: **up to 5 meters** when the remote is aimed directly at the IR receiver head
- Operating distance at a 45° angle: **up to 3 meters**
  Refer to the diagram below for the effective IR range.

IR Cable Pin Assignment

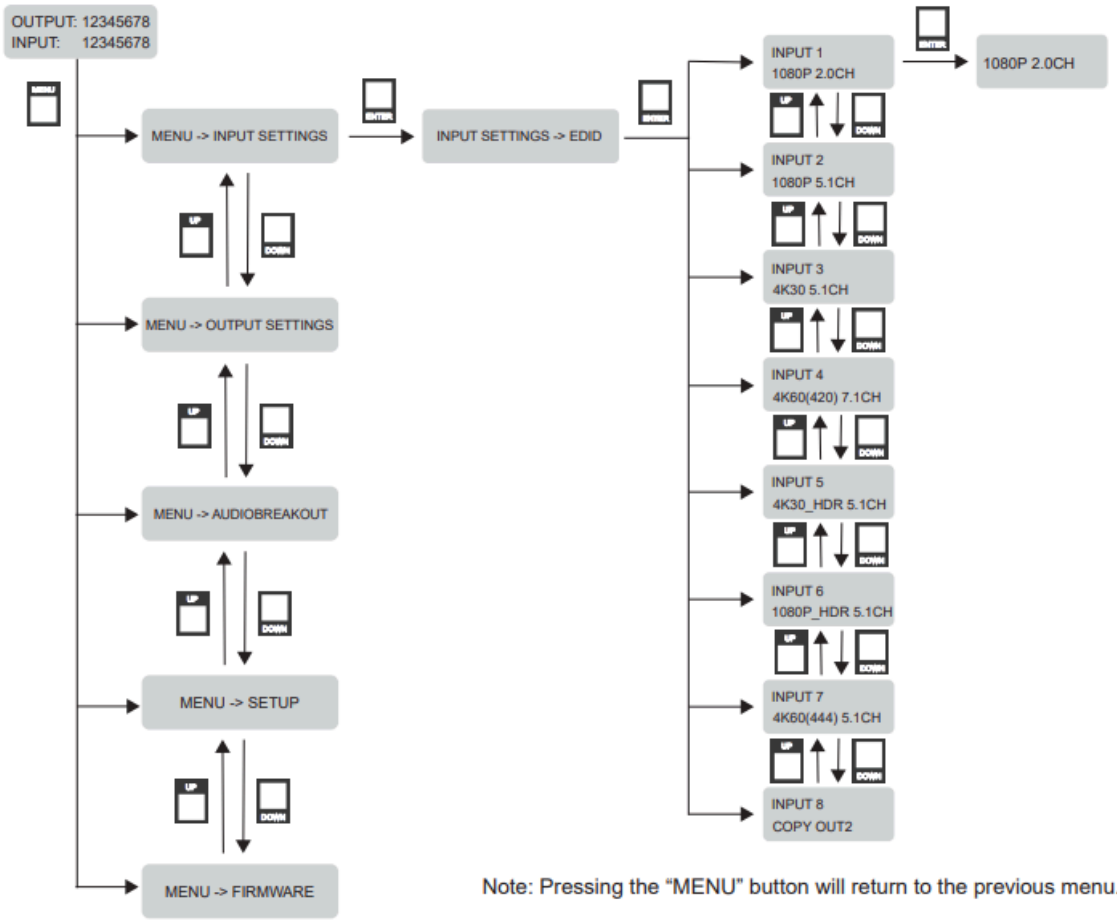


EDID Management

This Matrix provides **36 factory-preset EDID settings**, **3 user-defined EDID modes**, and **8 EDID copy modes**. EDID modes can be assigned to each input port using the **front panel buttons**, **RS-232 control**, or the **Web GUI**.

Front Panel EDID Configuration

1. From the default LCD screen, press **MENU** to enter the main menu.
2. Use the **UP / DOWN** buttons to select **Input Settings**, then press **ENTER**.
3. Select **EDID**, then press **ENTER**.
4. Use the **UP / DOWN** buttons to choose the desired EDID mode for the selected input.
5. Press **ENTER** to confirm and apply the setting.



Note: Pressing the "MENU" button will return to the previous menu.

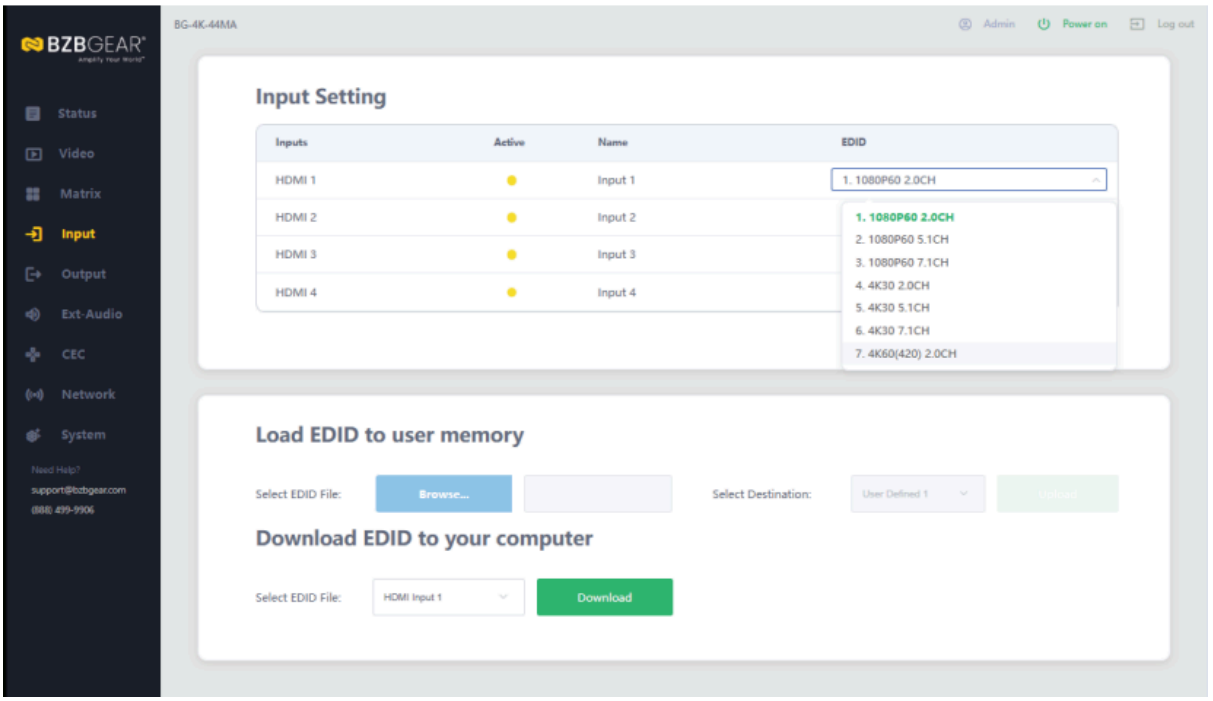
RS-232 EDID Configuration

1. Connect the Matrix to a PC using an RS-232 serial cable.
2. Open a serial command utility on the PC.
3. Send the ASCII command:
   `s input x EDID z!`
   to assign an EDID to the selected input.

4. For command syntax and parameter definitions, refer to **"EDID Setting"** in the **RS-232 Control Command (ASCII Command List)**.

Web GUI EDID Configuration

EDID settings can also be managed through the Web GUI.
Navigate to the **Input** page in the **Web GUI User Guide** and use the EDID management options to configure the desired input.



The defined EDID setting list of the product is shown as below:

Mode	Video Format	Audio	Mode	Video Format	Audio
1	1080p60	2.0 CH	15	4K30 HDR	7.1 CH
2	1080p60	5.1 CH	16	4K60 (4:2:0) HDR	2.0 CH
3	1080p60	7.1 CH	17	4K60 (4:2:0) HDR	5.1 CH
4	4K30	2.0 CH	18	4K60 (4:2:0) HDR	7.1 CH
5	4K30	5.1 CH	19	4K60 (4:4:4) HDR	2.0 CH
6	4K30	7.1 CH	20	4K60 (4:4:4) HDR	5.1 CH
7	4K60 (4:2:0)	2.0 CH	21	4K60 (4:4:4) HDR	7.1 CH
8	4K60 (4:2:0)	5.1 CH	22	User Defined EDID 1	—
9	4K60 (4:2:0)	7.1 CH	23	User Defined EDID 2	—

10	4K60 (4:4:4)	2.0 CH	24	User Defined EDID 3	—
11	4K60 (4:4:4)	5.1 CH	25	Copy Output EDID 1	—
12	4K60 (4:4:4)	7.1 CH	26	Copy Output EDID 2	—
13	4K30 HDR	2.0 CH	27	Copy Output EDID 3	—
14	4K30 HDR	5.1 CH	28	Copy Output EDID 4	—

Web GUI User Guide

The Matrix supports control via Web GUI. The operation procedure is as follows:

Step 1: Obtain the IP Address

The default IP address of the Matrix is **192.168.0.100**. The current IP address can be obtained using one of the following methods:

Method A: Front Panel Operation

1. From the LCD home screen, press **MENU** to enter the main menu.
2. Press **UP / DOWN** to select **SETUP**, then press **ENTER**.
3. Press **UP / DOWN** to select **NETWORK**, then press **ENTER**.
4. The current IP address is displayed.

Method B: RS-232 Command

1. Connect the Matrix to a PC via RS-232.
2. Open an ASCII command tool on the PC.
3. Send the following command:

```
None

r ipconfig!
```

4. The Matrix will return the network information, including the IP address, as shown below:

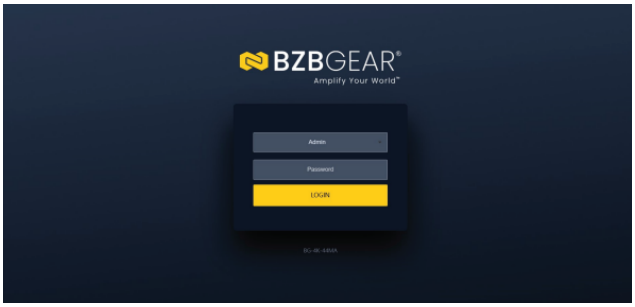
```
None

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 IP address may vary depending on the unit's network configuration. Refer to **RS-232 Control Command** for detailed ASCII command information.

Step 2: Network Setup

Connect the Matrix TCP/IP port to a PC using a UTP (Ethernet) cable.
Set the PC IP address to the same network segment as the Matrix.

Step 3: Web GUI Login

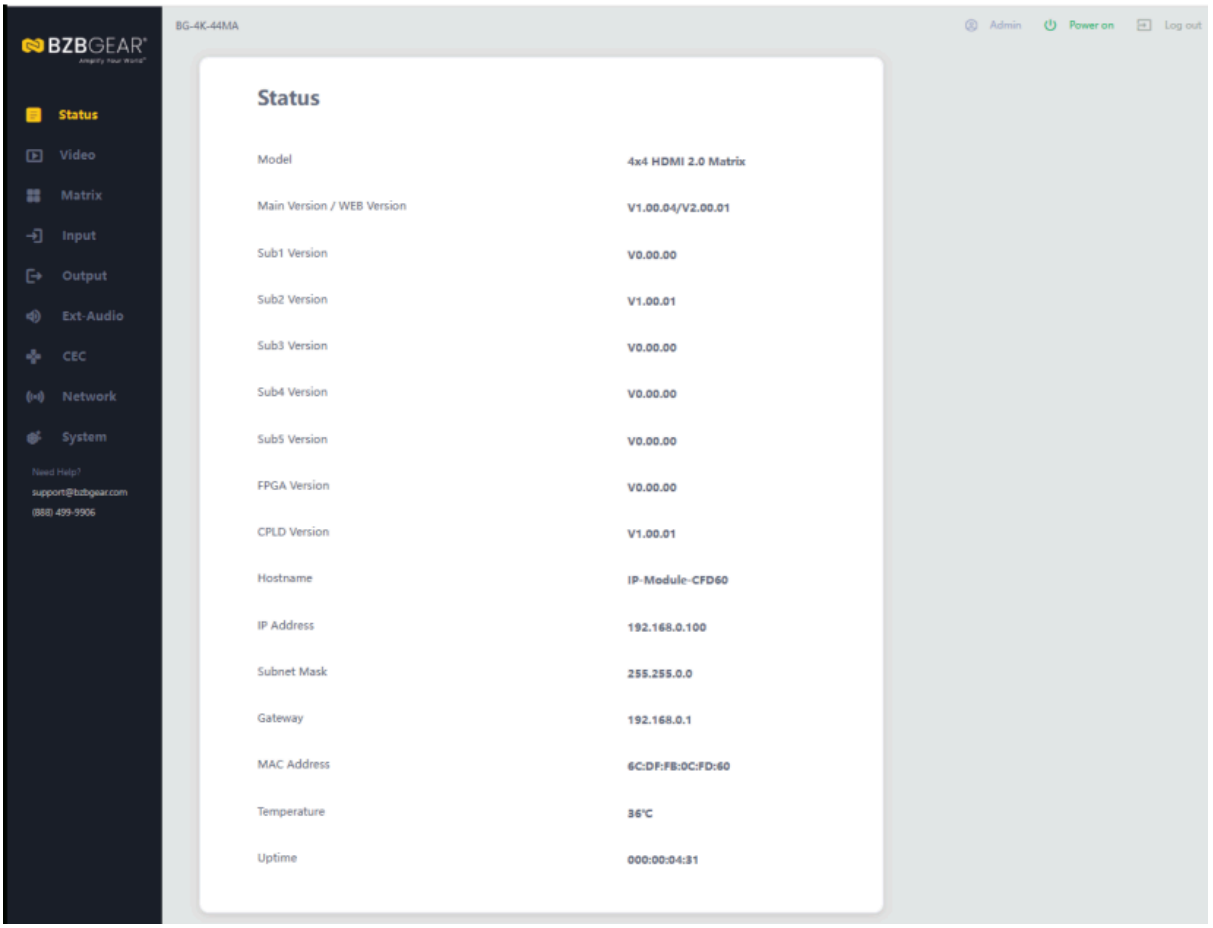


1. Open a web browser on the PC.
2. Enter the Matrix IP address in the address bar.
3. The Web GUI login page will be displayed.

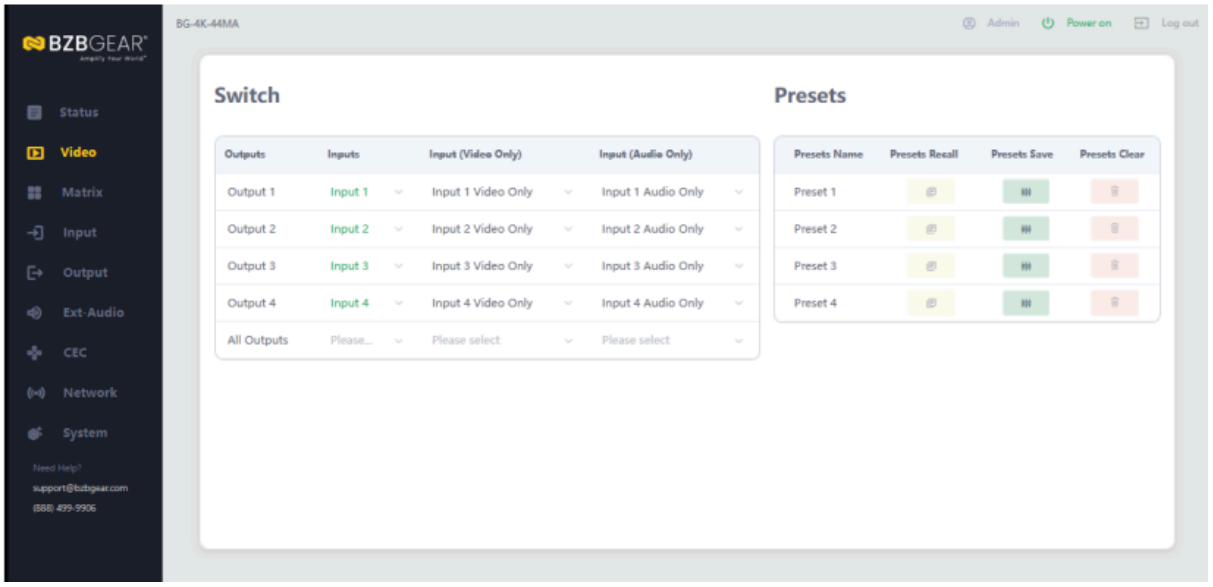
Select the username **“Admin”** and enter the password **“admin.”** Then click the **“LOGIN”** button. The Status page will appear.

Status Page

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



Video Page



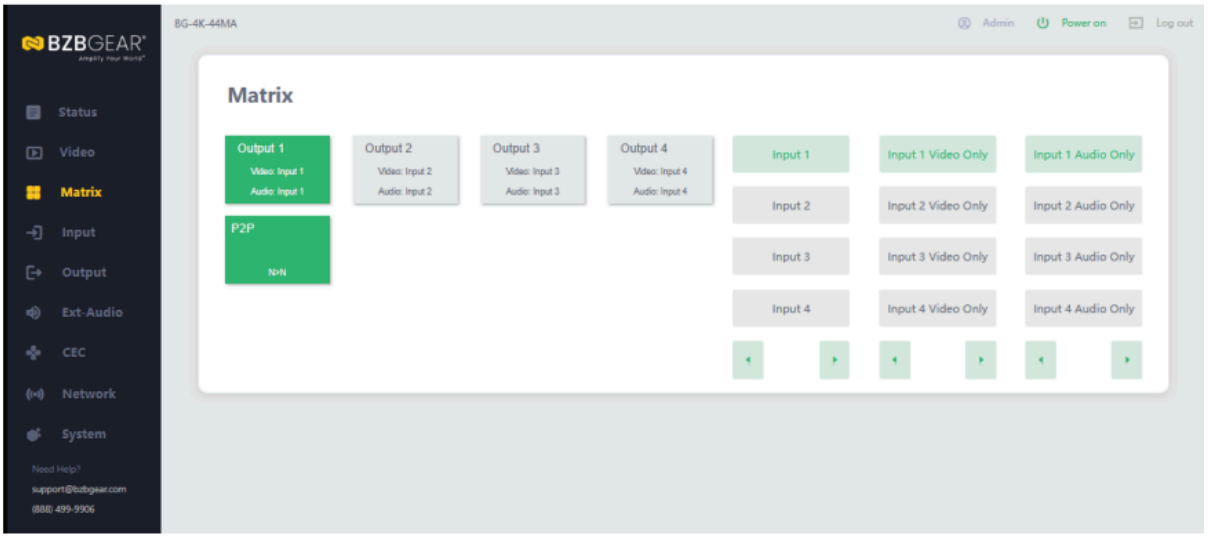
① **Switch:** Select the input signal source for the corresponding output port. Video and audio from the input channel can be assigned independently.

② **Presets:** Create, save, recall, or clear presets. Each preset stores the routing configuration between outputs and inputs on the Video page. Up to **4 presets** can be saved.

For example, **Preset 1** stores the routing configuration for **Output 1** and its assigned input channel. Click **Save** or **Clear** to manage the preset, and click **Recall** to apply it when needed.

The preset name can be customized.

Matrix Page



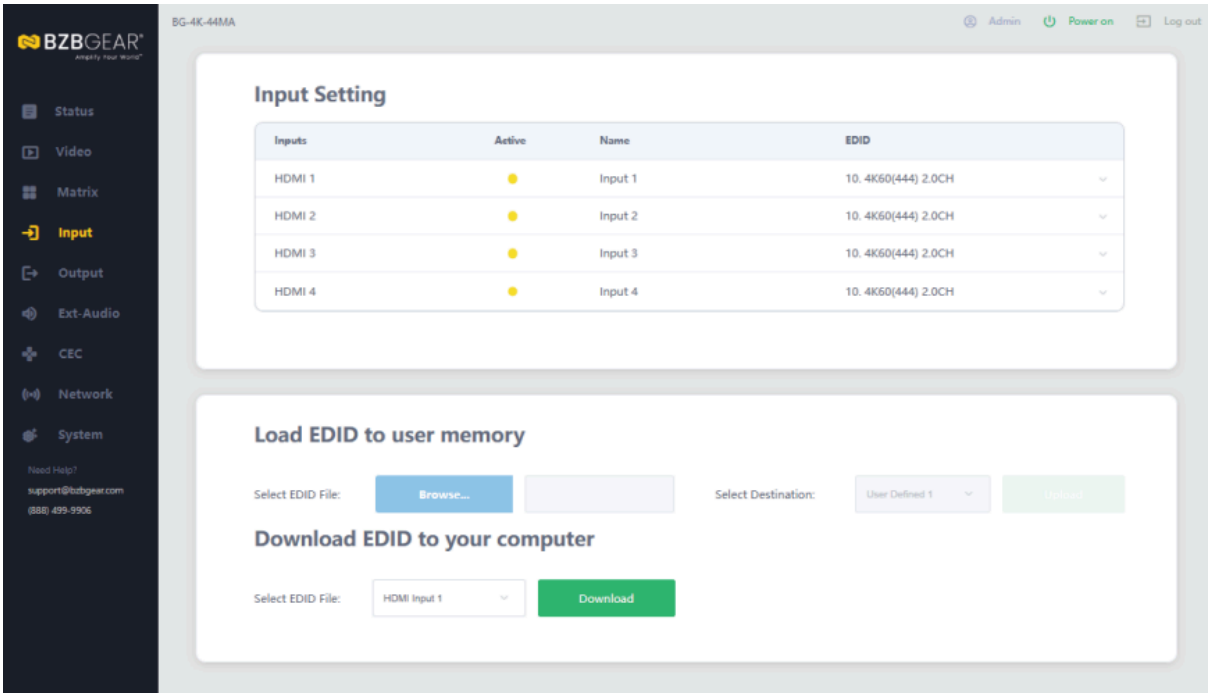
On the **Matrix** page, first select an output (1–4), then choose an input source (1–4). The available input sources will appear below the selected output area.

The display names of each input and output can be customized on the **Input** and **Output** pages.

Note: Video and audio signals from each input channel can be routed independently. For example, you can assign the video from **Input 3** and the audio from **Input 4** to **Output 2**.

Note: If you click P2P button, the output and input channels will be restored to one-to-one correspondence, that is, Output1 matches Input1, Output2 matches Input2…

Input Page



You can perform the following operations on the **Input** page:

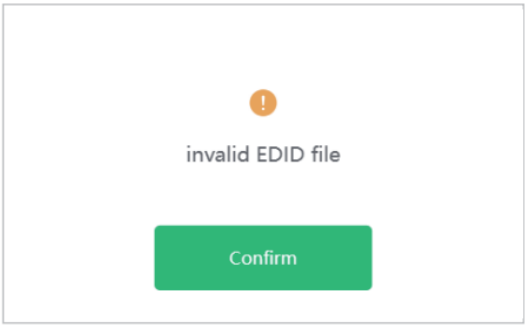
① **Input:** Displays the device's input channel.

② **Active:** Indicates whether the input channel is connected to a signal source. The indicator is **green** when connected and **yellow** when not connected.

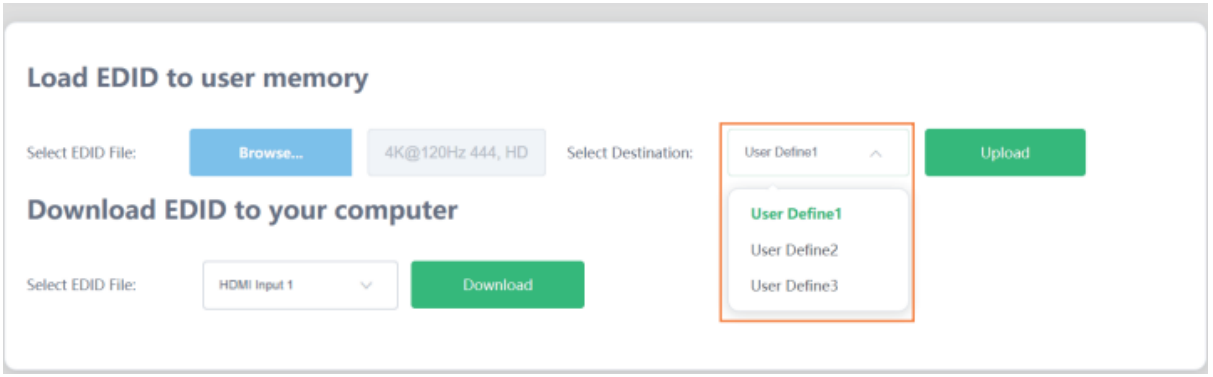
③ **Name:** Displays the input channel name. You can modify it by entering a custom name in the input field (maximum length: **32 characters**).

④ **EDID:** Displays the current EDID assigned to the input. Click the drop-down menu to select a different EDID.

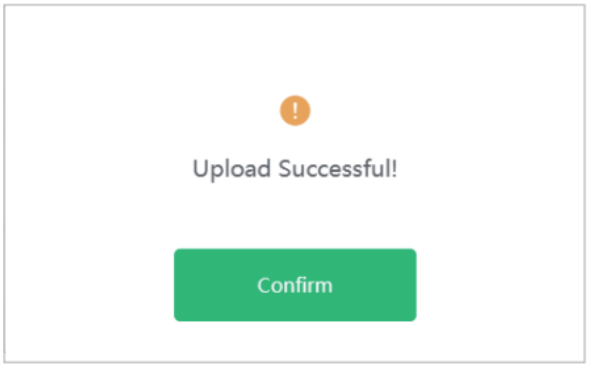
⑤ **Load EDID to User Memory:** Allows you to upload a custom EDID. Click **"Browse"**, then select the desired **.bin** file. If an invalid EDID file is selected, a prompt will appear, as shown in the figure below.



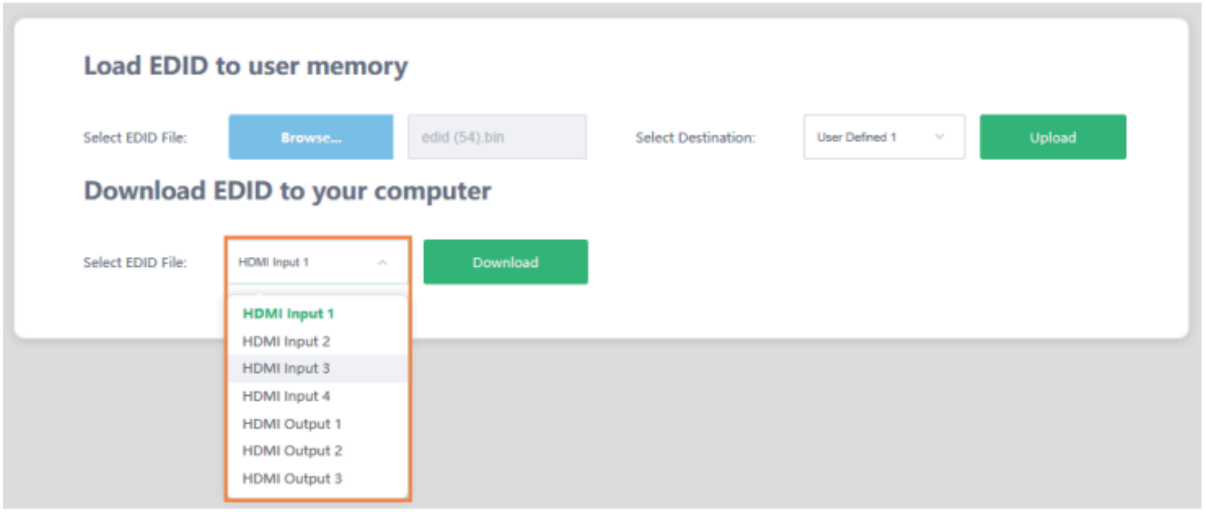
Make sure to select the correct file, and check the name of the selected file. Then select destination “User Define1/User Define2/User Define3”, and click “Upload”.



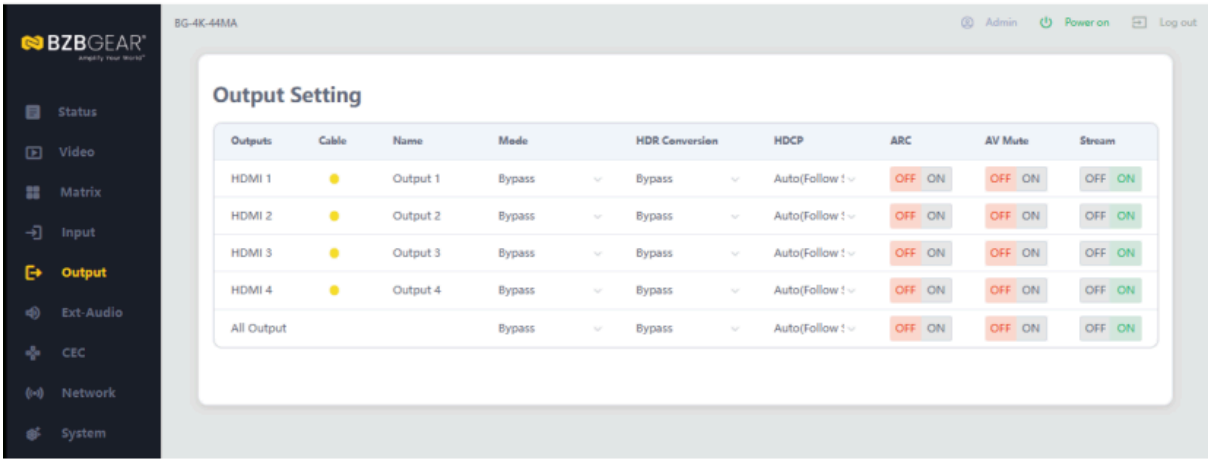
After successful setting, it will prompt as follows:



⑥ Download EDID to your computer: If you want to download the existing EDID, click the drop-down box of “Select EDID File” to select the input channel you want, and then click “Download” to save the corresponding EDID file to your computer.



Output Page



You can perform the following operations on the **Output** page:

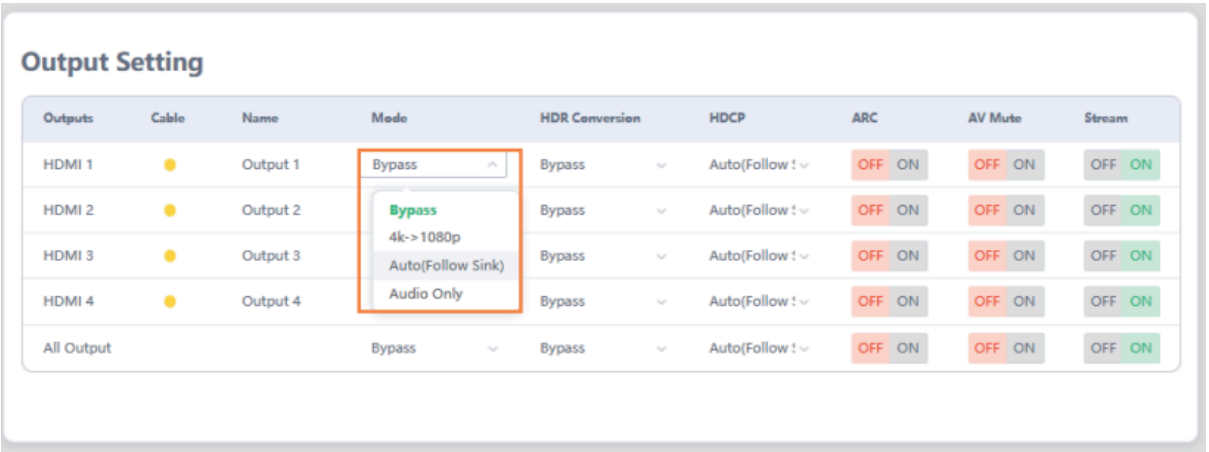
① **Outputs:** Displays the device's output channels.

- **All Output:** Selecting a value from the drop-down menu applies it to all output channels simultaneously.

② **Cable:** Indicates the connection status of each output port. The indicator is **green** when connected to a display and **yellow** when not connected.

③ **Name:** Displays the output channel name. You can modify it by entering a custom name in the input field (maximum length: **32 characters**).

④ **Mode:** Supports video downscaling for all outputs. The device will output the appropriate video resolution according to the selected mode. Click the drop-down menu to choose the desired video mode.

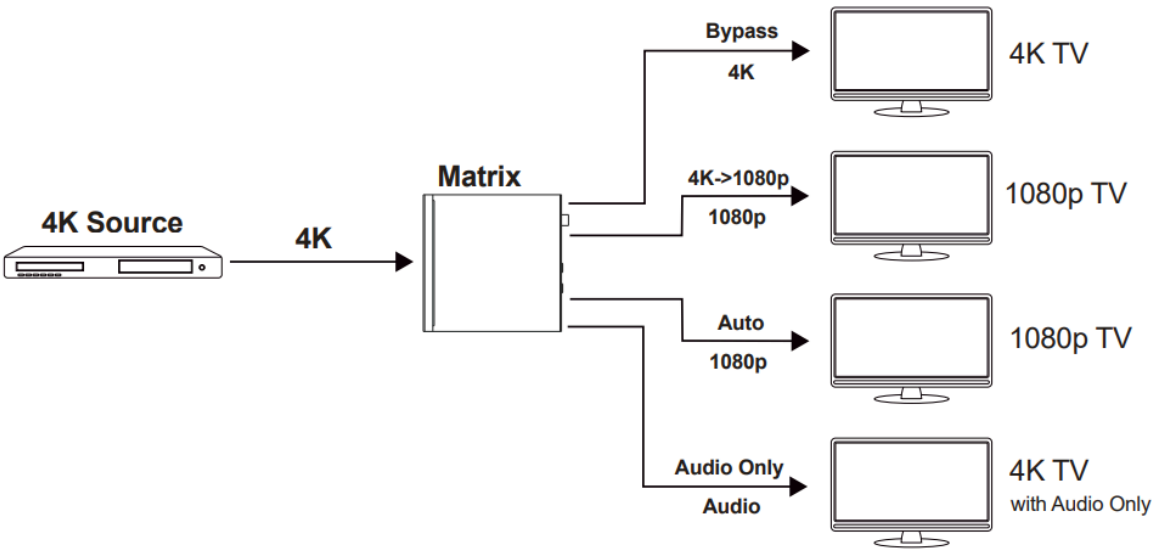


There are four available options:

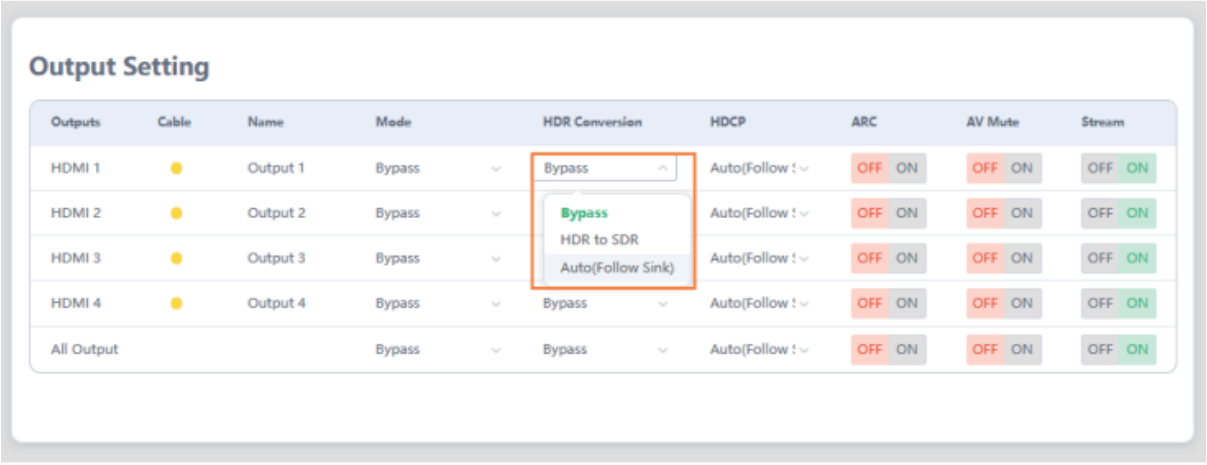
- **Bypass (Default):** The output resolution follows the input source.

- **4K → 1080p:** Downscales any 4K signal to 1080p.
- **Auto (Follow Sink):** The output resolution follows the EDID of the connected display device.
- **Audio Only:** Outputs only audio, with no video signal.

Example of video modes shown below:



⑤ **HDR Conversion:** This product supports HDR-to-SDR conversion on all outputs. It automatically outputs the appropriate HDMI signal based on the EDID of the connected display. Click the drop-down menu to select the desired HDR conversion mode.

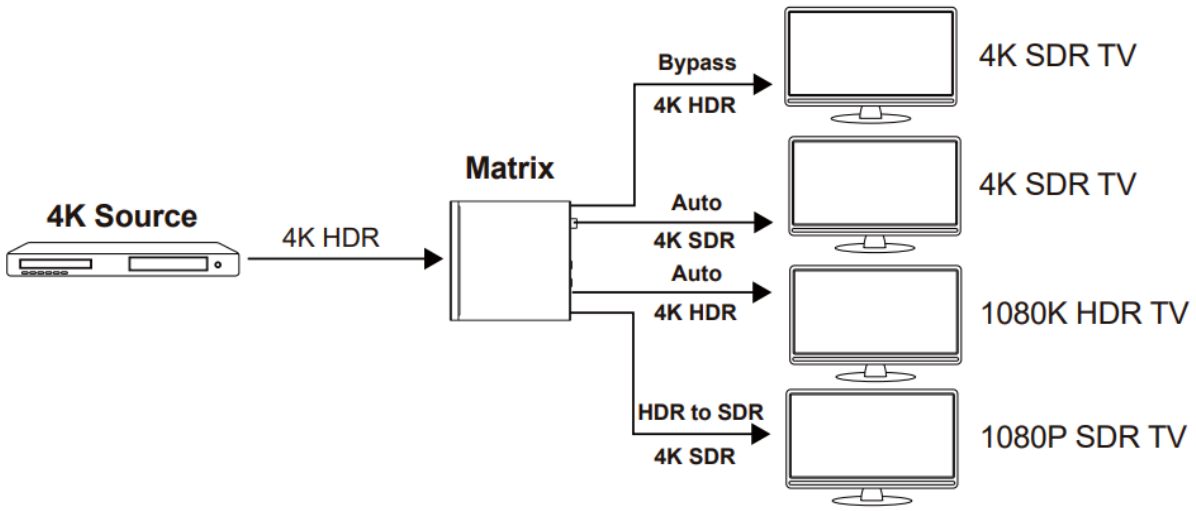


There are three available options:

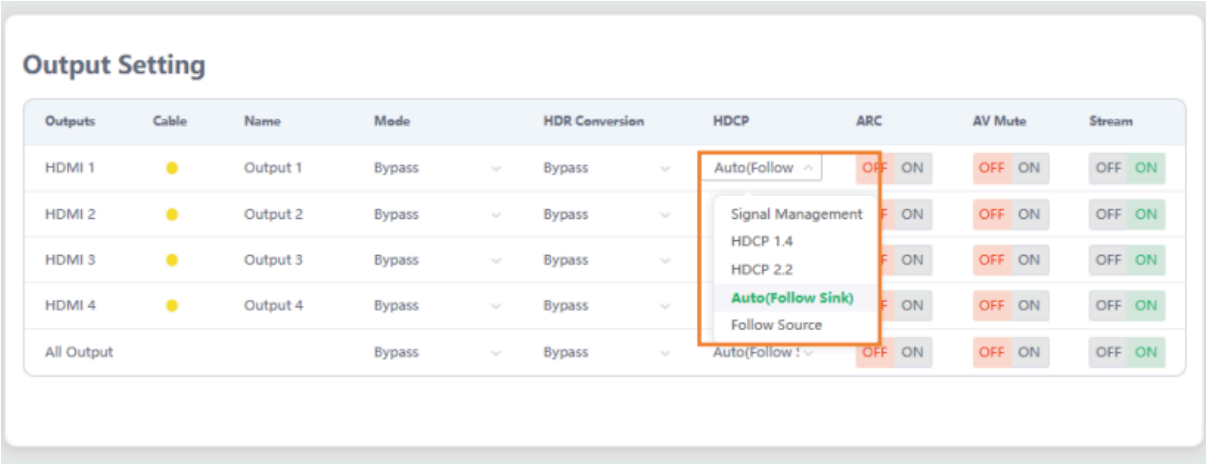
- **Bypass:** The output format follows the input source.
- **HDR to SDR:** Converts HDR HDMI signals to SDR to meet the requirements of the connected display.

- **Auto (Follow Sink):** The output format follows the EDID of the connected display device.

Example of HDR conversion shown below:



⑥ **HDCP:** Click the drop-down menu and set the HDCP for the current device output.



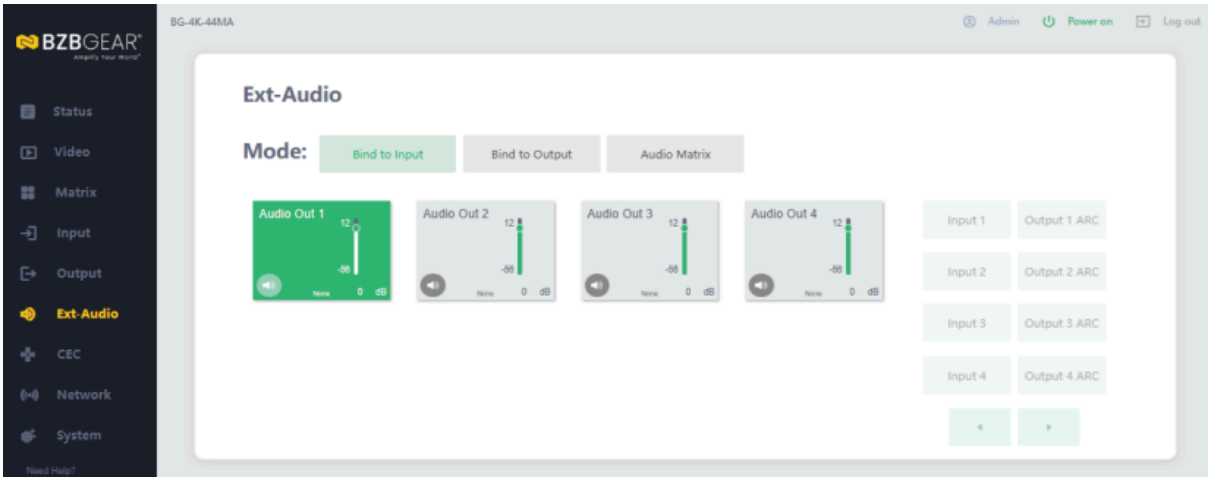
There are five available options:

- **Signal Management:** Reserved for future use.
- **HDCP 1.4:** Forces HDCP 1.4 compliance.
- **HDCP 2.2:** Forces HDCP 2.2 compliance.
- **Auto (Follow Sink):** The HDCP version follows the requirements of the connected display device.
- **Follow Source:** The HDCP version follows the assigned input source.

⑦ **ARC:** Click the **ON/OFF** button to enable or disable the ARC function.

⑧ **Stream:** Click the **ON/OFF** button to enable or disable the output stream.

EXT-Audio Page



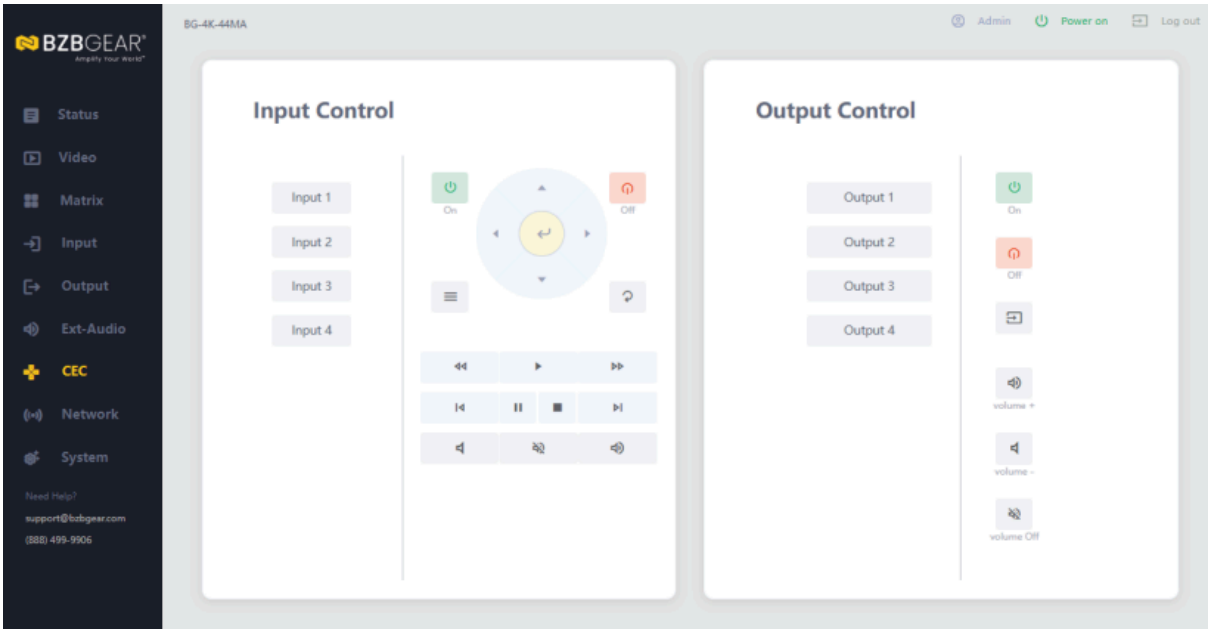
You can set the audio mode on the Ext-Audio page. There are three modes: Bind to Input, Bind to Output and Audio Matrix. In each mode, you can adjust the volume of the channel or mute it.

Bind to Input: The audio output follows the input signal. And there is a consistent one-to-one match between each HDMI input and audio output. In this mode, the input sources and output ARC can't be selected.

Bind to Output: The audio output follows the HDMI output. The HDMI input sources are assigned to the HDMI outputs, and then transmitted to the audio outputs from the HDMI outputs. The input sources could be the same or different. In this mode, the input sources and output ARC can't be selected.

Audio Matrix: This mode allows you to matrix the extracted audio independently. Click on an Audio Out, and then select any input source or ARC audio on the right, which will appear below the selected audio out. One route of audio configuration is completed.

CEC Page

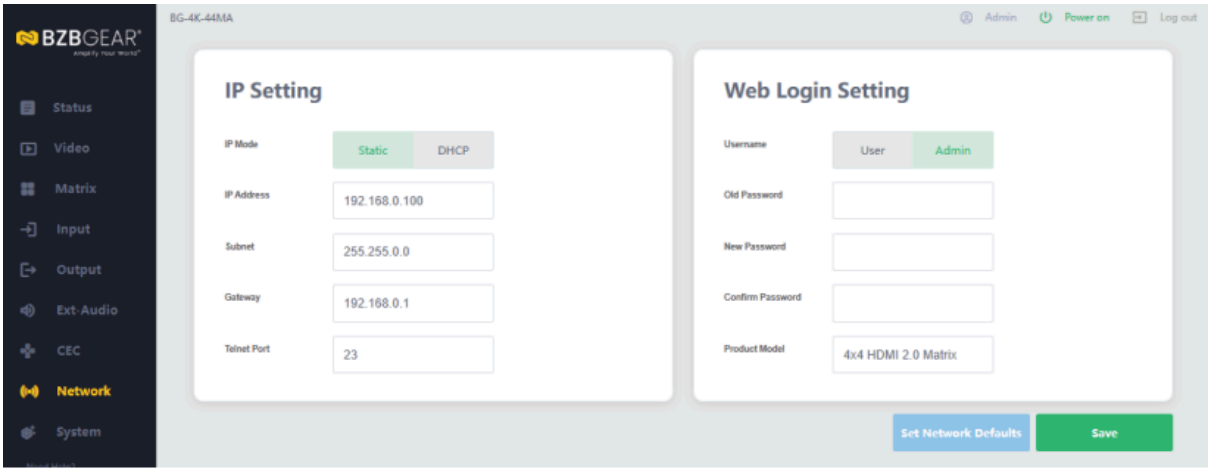


You can manage **CEC** functions on this page. Inputs and outputs can be controlled by clicking the corresponding icons.

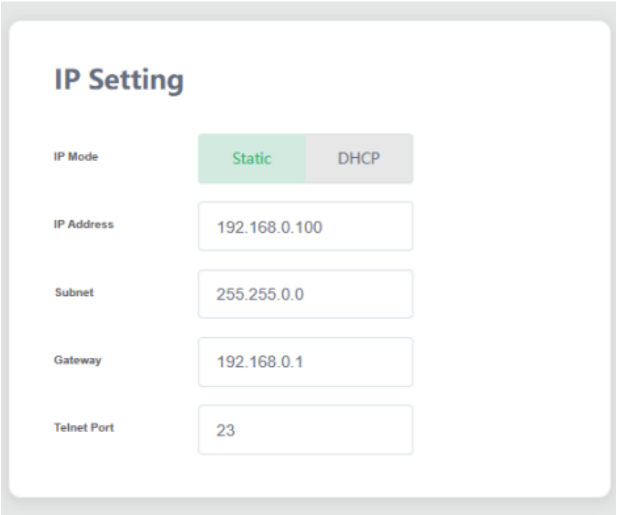
① **Input Control:** Select an input source from the left panel, then use the icons to control functions such as **power on/off, return, source switching, play/pause, fast forward, rewind, mute, and unmute**.

② **Output Control:** Select an output from the left panel, then use the icons to control the connected display, including **power on/off, volume up/down/mute, and active source switching**.

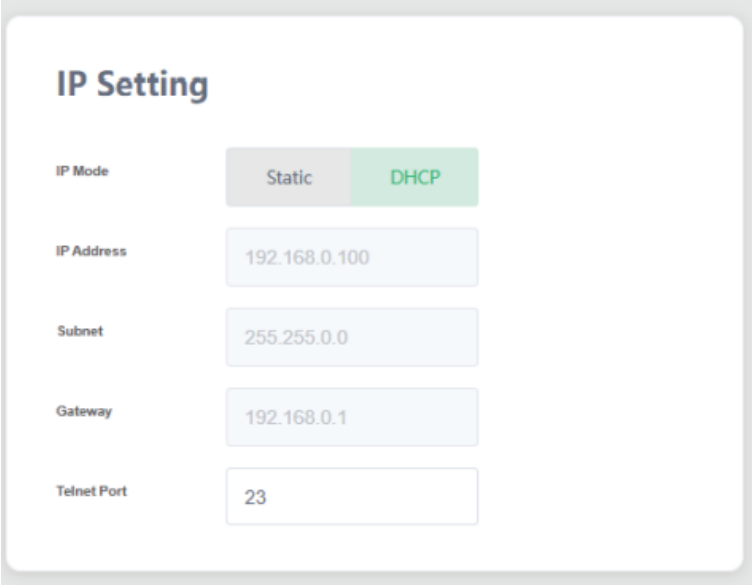
Network Page



① **Modify Network Settings:** Configure the **IP mode, IP address, gateway, subnet mask,** and **Telnet port** as needed. Click **"Save"** to apply and activate the changes.



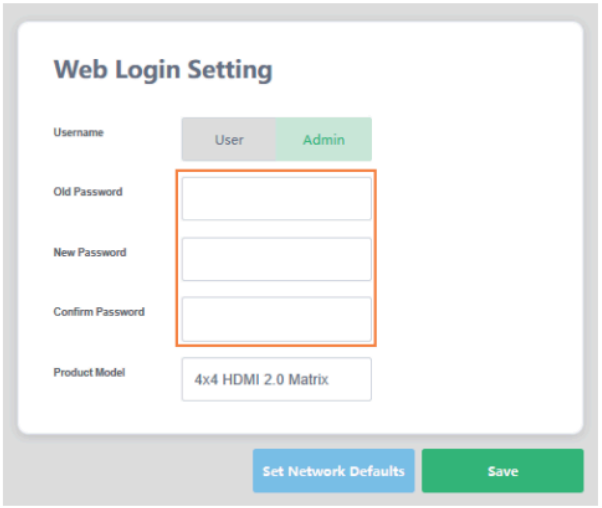
If the Mode is "Static", you can manually set the IP Address/Gateway/ Subnet/Telnet Port as required.

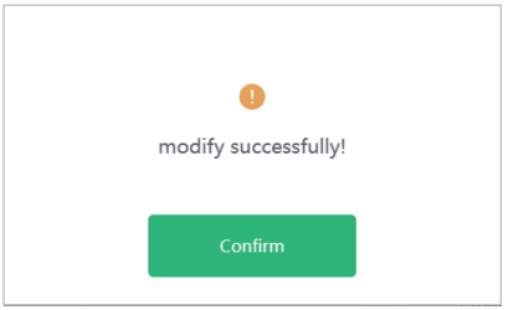


If the Mode is set to "DHCP", it will search and be filled with the IP Address assigned by the router automatically. You cannot manually modify a DHCP-assigned IP address.

② **Modify User Password:**

Click the **"User"** button, then enter the correct **Old Password**, **New Password**, and **Confirm Password**. Click **"Save"** to apply the changes. After the password is successfully updated, a confirmation prompt will appear, as shown in the figure below.



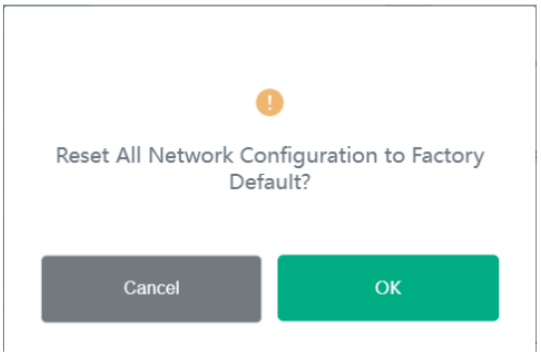


Note: Password Change Rules:

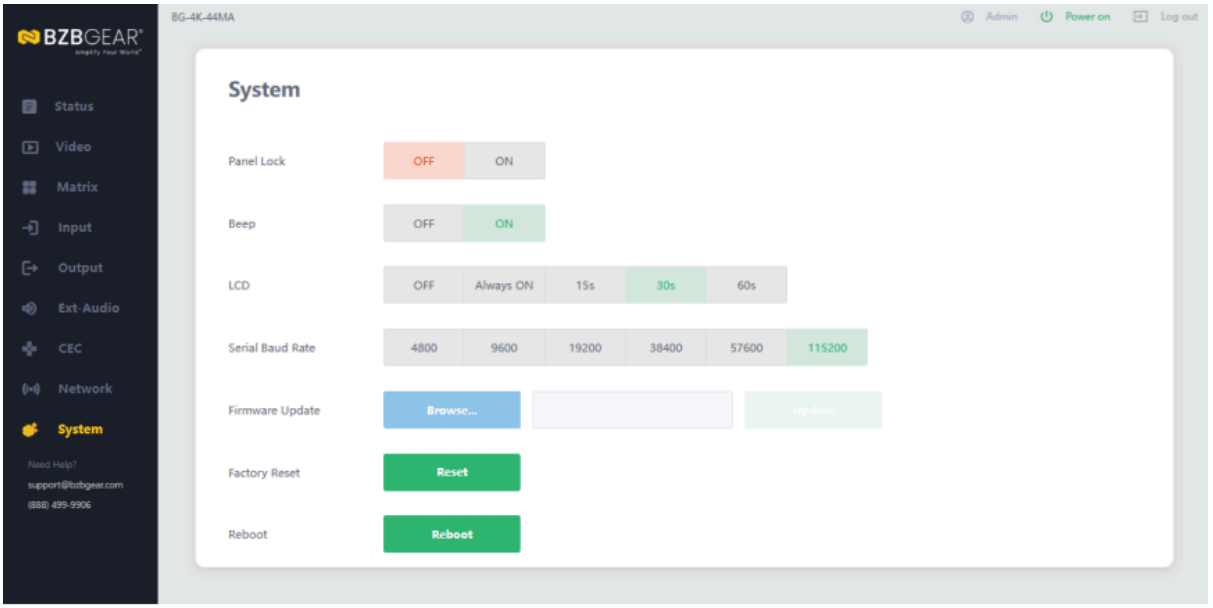
1. The password cannot be empty.
2. The new password must be different from the old password.
3. The new password and confirm password must match.

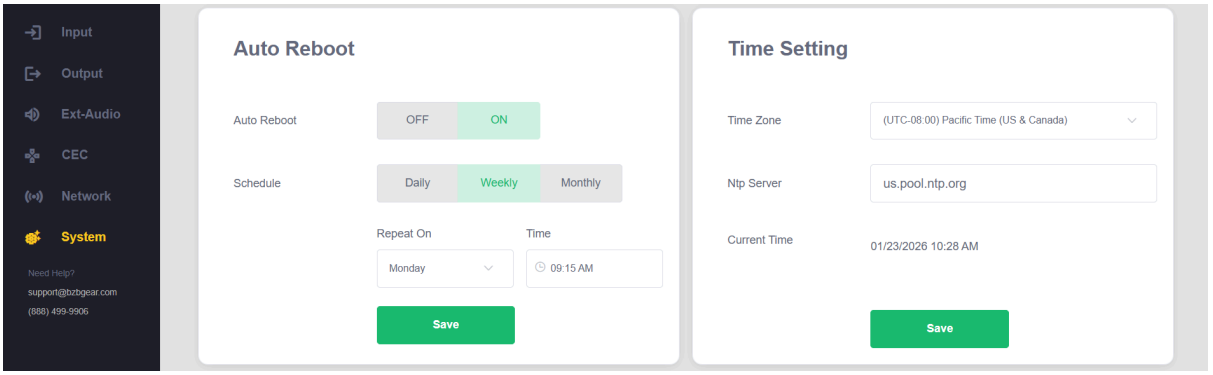
③ **Set Default Network:**

Click **"Set Network Defaults"**. A confirmation prompt will appear, as shown in the figure below.



System Page





You can perform the following operations on the **System** page:

① **Panel Lock:** Click **ON/OFF** to lock or unlock the front-panel buttons.

- **ON:** Panel buttons are disabled.
- **OFF:** Panel buttons are enabled.

② **Beep:** Enable or disable the system beep.

③ **LCD:** Turn the LCD display on or off and set the display timeout (**Always On / 15 s / 30 s / 60 s**).

④ **Serial Baud Rate:** Click the value to configure the serial communication baud rate.

⑤ **Firmware Update:** Click **“Browse”** to select the firmware file, then click **“Update”** to complete the firmware upgrade.

⑥ **Factory Reset:** Click **“Reset”** to restore the unit to factory default settings.

⑦ **Reboot:** Click **“Reboot”** to restart the unit.

Note: After a reset or reboot, the system 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 Command

The BG-4K-44MA supports **RS-232 control**. Connect the Matrix RS-232 control port to a PC using an RS-232 serial cable. Then, open a serial command tool on the PC and send **ASCII commands** to control the Matrix.

The ASCII command list for this product is shown below:

RS-232 Command Table

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
Parameters: x, y, z, XXX are parameters
Error Codes:

- E00 → Unknown command
- E01 → Parameter out of range
- E02 → Get error EDID data

Command Code	Function	Description	Example	Feedback	Default
help!	System	List all commands	help!	-	-
status!	System	Get device current status	status!	Please refer to the note at the end of the list.	-
r type!	System	Get device model	r type!	4x4 HDMI 2.0 Matrix	-
r fw version!	System	Get Firmware version	r fw version!	BOOT: V1.00.01MCU: V1.00.01WEB: V1.00.01SUB1-SUB5: V1.00.01FPGA: V1.00.01CPLD: V1.00.01	-
power z!	System	Power on/off, z=0~1	power 1!	Power: onSystem initializing…Initi	BOOT: V1.00.01MCU: V1.00.01W

				alization finished!	EB: V1.00.01
r power!	System	Get current power state	r power!	Power: on	-
s beep z!	System	Enable/Disable buzzer, z=0~1	s beep 1!	Beep: on	beep off
r beep!	System	Get buzzer state	r beep!	Beep: on	-
s lock z!	System	Lock/Unlock front panel button, z=0~1	s lock 1!	Button lock: on	Lock off
r lock!	System	Get panel button lock state	r lock!	Button lock: on	-
s ir z!	System	Set IR on/off, z=0~1	s ir 1!	IR: on	IR on
r ir!	System	Get IR on/off state	r ir!	IR: on	-
s lcd on time z!	System	Set LCD remain on time, z=0~4	s lcd on time 3!	Lcd remain time: 30s	30 seconds
r lcd mode!	System	Get backlight status	r lcd mode!	Lcd remain time: 30s	-
s baud x!	System	Set RS-232 baud rate, x=1~6	s baud 6!	Baud rate: 115200	115200
r baud!	System	Get RS-232 baud rate	r baud!	Baud rate: 115200	-
reboot!	System	Reboot the device	reboot!	Reboot…System initializing…Initialization finished!	-

reset!	System	Reset to factory defaults	reset!	Reset to factory defaultsSystem initializing…Initialization finished!	-
r link in x!	System	Get input x connection status, x=0~4 (0=All)	r link in 1!	HDMI input 1: connect/sync/disconnect	-
r link out y!	System	Get output y connection status, y=0~4 (0=All)	r link out 1!	HDMI output 1: connect/disconnect	-
s save preset z!	System	Save switch state to preset z, z=1~4	s save preset 1!	Preset 1: save	-
s recall preset z!	System	Recall preset z, z=1~4	s recall preset 1!	Preset 1: recall	-
s clear preset z!	System	Clear stored preset z, z=1~4	s clear preset 1!	Preset 1: clear	-
r preset z!	System	Get preset z info, z=1~4	r preset 1!	Video/audio crosspoint	-
s fan x speed y!	System	Set fan x speed y, x=0~2, y=0~4	s fan 0 speed 0!	Fan 1 speed: autoFan 2 speed: auto	0
r fan x speed!	System	Get fan x speed	r fan 0 speed!	Fan 1 speed: autoFan 2 speed: auto	-
r temp!	System	Get internal temperature	r temp!	65°C	-
r uptime!	System	Get running time	r uptime!	000:00:13:04	-
s output y in source x!	Output	Route input x to output y, y=0~4, x=1~4	s output 1 in source 1!	Output 1: input 1	-

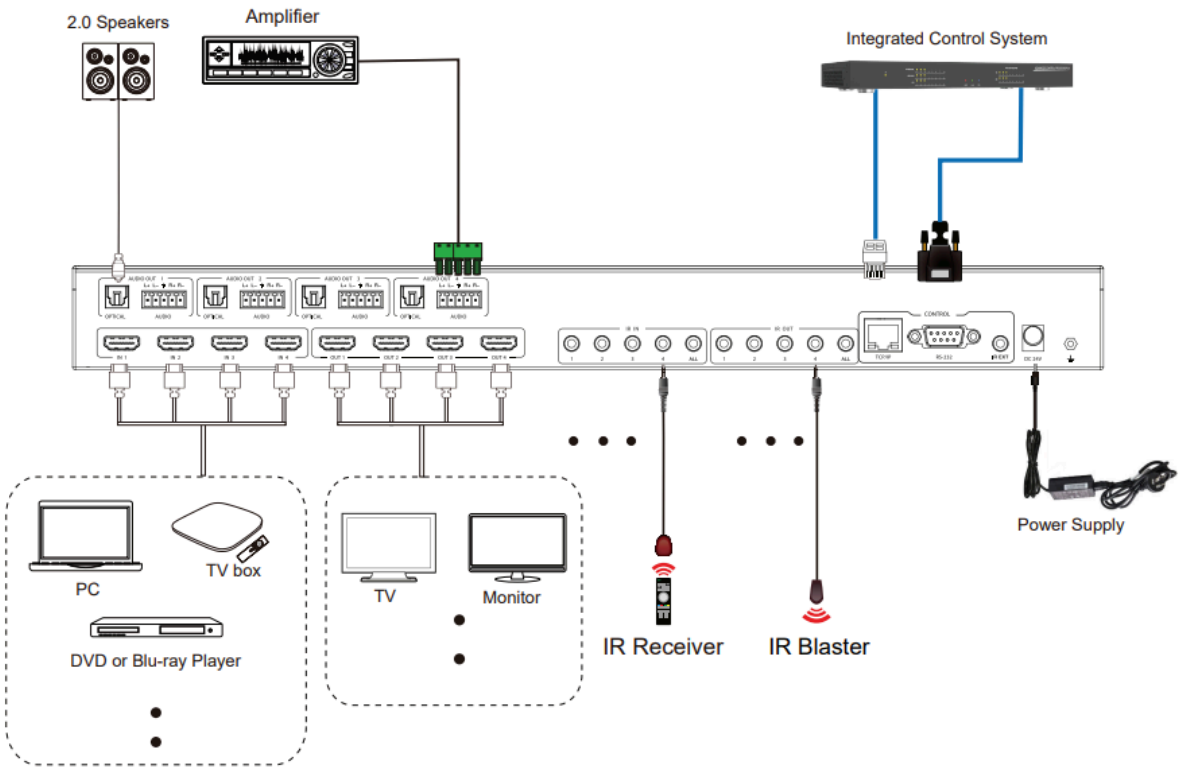
r output y in source!	Output	Get output y selected input	r output 1 in source!	Output 1: input 1	-
s output y in audio x!	Output	Route audio x to output y, y=0~4, x=0~4	s output 0 in audio 2!	Output 1-4 audio: input 2	Current stream embedded
r output y in audio!	Output	Get output y selected audio	r output 0 in source!	Output 1-4 audio: input 2	-
s output y hdcp x!	Output	Set output HDCP, y=0~4, x=0~4	s output 1 hdcp 2!	Output 1 HDCP: HDCP2.2 Follow sink	-
r output y hdcp!	Output	Get output HDCP status	r output 1 hdcp!	Output 1 HDCP: HDCP2.2	-
s output y stream x!	Output	Enable/disable output y stream, y=0~4, x=0~1	s output 1 stream 1!	Output 1 stream: enable	Enable
r output y stream!	Output	Get output y stream status	r output 1 stream!	Output 1 stream: enable	-
s output y video mode x!	Output	Set output y video mode, y=0~4, x=1~4	s output 1 video mode 2!	Output 1 video mode: 4K to 1080P	Bypass
r output y video mode!	Output	Get output y video mode	r output 1 video mode!	Output 1 video mode: 4K to 1080P	-
s output y avmute x!	Output	Set output y AV mute, y=0~4, x=0~1	s output 1 avmute 1!	Output 1 avmute: on	Off
r output y avmute!	Output	Get output y AV mute status	r output 1 avmute!	Output 1 avmute: on	-
s output y hdr x!	Output	Set output y HDR mode,	s output 1 hdr 2!	Output 1 HDR mode: HDR to SDR	Bypass

		y=0~4, x=1~3			
r output y hdr!	Output	Get output y HDR mode	r output 1 hdr!	Output 1 HDR mode: HDR to SDR	-
s output y arc x!	Output	Set output y ARC on/off, y=0~4, x=0~1	s output 1 arc 0!	Output 1 arc: off	Off
r output y arc!	Output	Get output y ARC status	r output 1 arc!	Output 1 arc: off	-
s input x EDID z!	EDID	Set HDMI input x EDID, x=0~4, z=1~28	s input 1 EDID 10!	Input 1 EDID: 4K60(444) 2.0CH	4K60(444) 2.0CH
r input x EDID!	EDID	Get input x EDID, x=0~4	r input 1 EDID!	Input 1 EDID: 4K60(444) 2.0CH	-
s user x edid 00 FF FF …!	EDID	Set user x EDID data, x=1~3	s user 1 edid 00 FF FF FF…!	User 1 EDID data: 00 FF FF FF …	-
r user x edid!	EDID	Get user x EDID data	r user 1 edid!	User 1 EDID data: 00 FF FF FF …	-
s output exa mode x!	Ext-Audio	Set ext-audio mode x=0~2	s output exa mode 0!	Ext-audio mode: follow input	Follow input
r output exa mode!	Ext-Audio	Get output ext-audio mode	r output exa mode!	Ext-audio mode: follow input	-
s output y exa in source x!	Ext-Audio	Route input to ext-audio, y=0~4, x=1~8	s output 1 exa in source 1!	Ext-audio 1: input 1	-
r output y exa in source!	Ext-Audio	Get output ext-audio selected input	r output 0 exa in source!	Ext-audio 1-4: input 1-4	-

s output y exa analog gain x!	Ext-Audio	Set output analog gain, x=-56~+12dB	s output 0 exa analog gain 0!	Ext-audio analog 1-4 gain: 0dB	0dB
r output y exa analog gain!	Ext-Audio	Get output analog gain	r output 1 exa analog gain!	Ext-audio analog 1 gain: 0dB	-
s output y exa mute x!	Ext-Audio	Set mute on/off, x=0~1	s output 0 exa mute 1!	Ext-audio 1-4 mute: on	Off
r output y exa mute!	Ext-Audio	Get ext-audio mute status	r output 1 exa mute!	Ext-audio 1 mute: on	-
s cec in x on/off/menu/back/up/down/left/right/enter/play/pause/stop/rew/vol-/vol+/ff/previous/next!	CEC	Control input x via CEC, x=0~4	s cec in 1 on!	HDMI input 1 CEC: power on	-
s cec hdmi out y on/off/mute/vol-/vol+/active!	CEC	Control HDMI output y via CEC, y=0~4	s cec hdmi out 1 on!	HDMI output 1 CEC: power on	-
r ipconfig!	Network	Get current IP config	r ipconfig!	IP mode: DHCPIP: 192.168.62.106 Subnet: 255.255.255.0Gateway: 192.168.62.1TCP/IP: 8000Telnet: 23MAC: 6C:DF:FB:0C:B3:8E	-
r mac addr!	Network	Get MAC address	r mac addr!	Mac address: 00:1C:91:03:80:01	-

s ip mode z!	Network	Set IP mode (0=Static, 1=DHCP)	s ip mode 0!	Set IP mode: Static	Static
r ip mode!	Network	Get IP mode	r ip mode!	IP mode: Static	-
s ip addr xxx.xxx.xxx.xxx!	Network	Set IP address	s ip addr 192.168.0.100!	Set IP: 192.168.0.100	-
r ip addr!	Network	Get IP address	r ip addr!	IP address: 192.168.0.100	-
s subnet xxx.xxx.xxx.xxx!	Network	Set subnet mask	s subnet 255.255.255.0!	Subnet: 255.255.255.0	-
r subnet!	Network	Get subnet mask	r subnet!	Subnet: 255.255.255.0	-
s gateway xxx.xxx.xxx.xxx!	Network	Set gateway	s gateway 192.168.0.1!	Gateway: 192.168.0.1	-
r gateway!	Network	Get gateway	r gateway!	Gateway: 192.168.0.1	-
s tcp/ip port x!	Network	Set TCP/IP port	s tcp/ip port 8000!	TCP/IP port: 8000	-
r tcp/ip port!	Network	Get TCP/IP port	r tcp/ip port!	TCP/IP port: 8000	-
s telnet port x!	Network	Set Telnet port	s telnet port 23!	Telnet port: 23	-
r telnet port!	Network	Get Telnet port	r telnet port!	Telnet port: 23	-
s net reboot!	Network	Reboot network module	s network reboot!	Network reboot…IP: 192.168.62.106 Subnet: 255.255.255.0Gateway: 192.168.62.1	-

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**

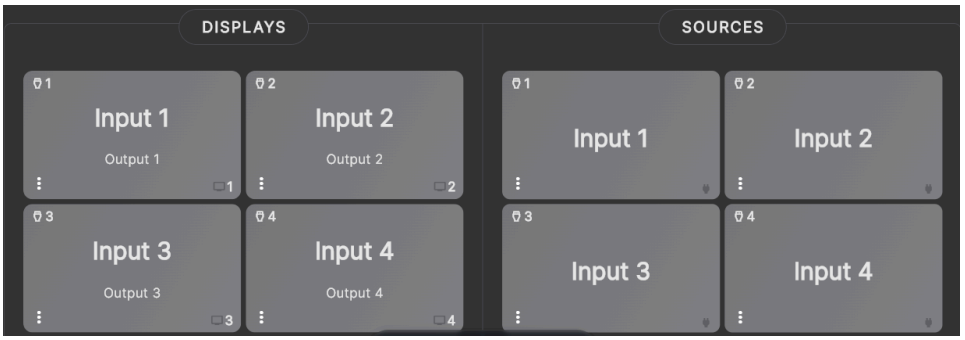
- All control devices must be connected to the **same local network** as the matrix switcher.

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.)

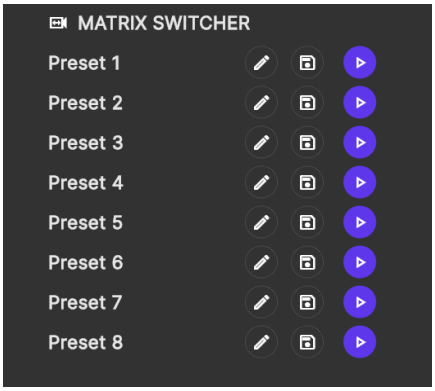
Matrix Switching



- 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**.

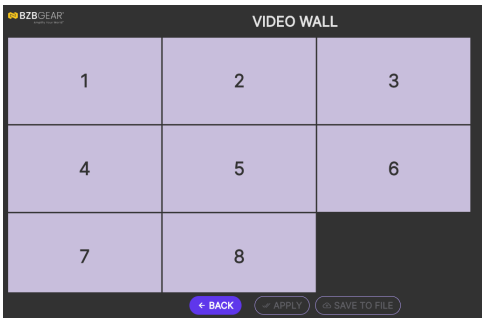
Preset Management

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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