BZB GEAR®
Solutions to Amplify Your World™

BG-UM-88ANS

8X8 4K 18Gbps UHD Matrix with IP/RS-232 Control and Audio De-Embedding

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.
- Unplug this device during lightning storms
- Clean only with a soft dry microfiber cloth.
- 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.
- Only use accessories specified by the manufacture
- Product specifications may be subject to technical upgrades without further notice

Introduction

The BG-UM-88ANS is an 8x8 4K HDMI matrix switch. It supports resolutions up to 4K@60Hz 4:4:4 and it is also HDCP 1.4 & 2.2 compliant. Featuring 8 HDMI 2.0b inputs and 8 HDMI 2.0b outputs, this device offers 18Gbps uncompressed bandwidth on all HDMI ports.

This matrix can quickly route any of the eight inputs to any of the eight outputs utilizing either the front panel menu, IR remote control, RS-232, or web interface. The control software, connected via RS-232 or the web interface, allows full control with the ability to adjust advanced features including mapping, network settings, and EDID management for easy integration.

Audio de-embed from any of the 8 coax audio outputs, which all provide multi-channel digital audio (up to 7.1-channel). The supported various audio formats include LPCM, Dolby TrueHD, and DTS-HD® Master Audio.

Features

- HDMI 2.0b, HDCP 2.2, and HDCP 1.4 compliant
- Up to 4K2K@60Hz (YUV 4:4:4) on all HDMI ports
- Supports High Definition audio pass-through of up to 7.1 channels (LPCM, Dolby TrueHD, and DTS-HD Master Audio)
- Audio de-embedding via coax ports
- HDR, CEC, and smart EDID management
- Control is via Button Panel, IR, RS-232, LAN, and Web UI
- 1U rack mounted design with metal enclosure

Packing List

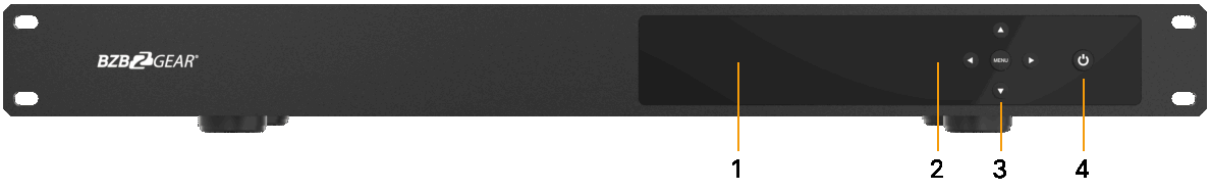
- 1x 8x8 HDMI Matrix
- 1x 12V/3A Locking Power Adaptor
- 1x IR Remote
- 1x Wideband IR Receiver cable
- 1x User Manual
- 1x Quick Start Guide

Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Bandwidth	18Gbps
Video Resolutions	Up to 4K2K@50/60Hz (YUV 4:4:4), 4K2K@30Hz, 1080p@120Hz, and 1080p 3D@60Hz
Color Depth	8-bit, 10-bit, 12-bit
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2
HDMI Audio Formats	LPCM 2/5.1/7.1, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
Audio Formats	PCM2.0, 32K/44.1K/48K/88.2K/96K/192K, 16/20/24bit
ESD Protection	Human-body Model: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connections	
Inputs	8x HDMI Type A [19-pin female] 1x LAN [RJ45, Control] 1x RS-232 [9-pin D-sub, Control] 1x IR EXT [3.5mm Stereo Mini-jack]
Outputs	8x HDMI Type A [19-pin female] 8x Coaxial Audio [RCA]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	19.0" (W) x l.O" (D) x 1.8" (H) [483mm (W) x 253mm (D) x 44.5mm (H)]
Weight	7.39lbs [3.35kg]
Power Supply	Input: AC100~240V 50/60Hz, Output: DC12V/3A (US/EU standards, CE/FCC/UL certified)
Power Consumption	26.5W (max)
Operating Temperature	32°F ~ 104°F / 0°C ~ 40°C
Storage Temperature	-4°F ~ 140°F / -20°C ~ 60°C
Relative Humidity	20~90% RH (non-condensing)

Operation Controls and Functions

Front Panel



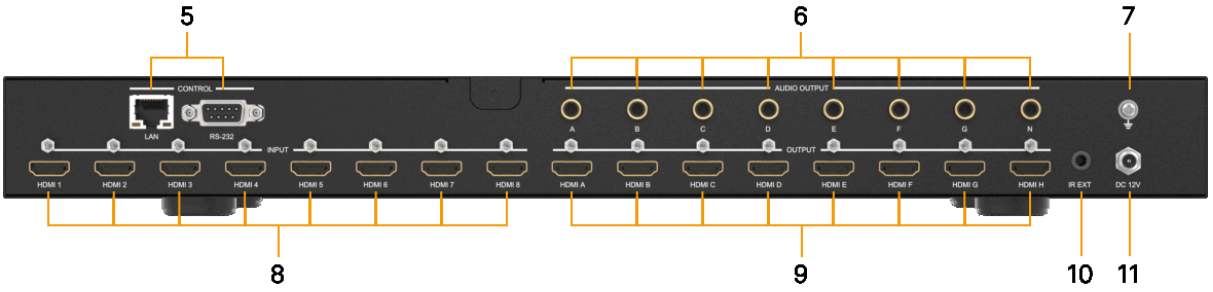
No	Name	Function Description
1	OLED display	Display system input/output port status, EDID management, and matrix IP address.
2	IR Window	IR receiver window, it receives IR remote control signals to control this device.
3	Left / Right / Up / Down Menu Buttons	After system power up, the OLED screen default displays the input and output status of the last power off. A) On the initial display, first press the 'Left' or 'Right' button to select the output port, then press the 'up' or 'down' button to select the input port, then press the 'Menu' button to confirm this operation. B) On the initial display, you can press the 'Up' or 'Down' button to check each input EDID setting, press the 'Menu' button to go back to the initial display. C) On the initial display, you can press 'Menu' to operate the following functions, press 'Up' or 'Down' buttons to select a function: **1.** Select EDID: Press the 'Right' button, then press the 'Up' or 'Down' button to select EDID as shown in the below table. Once you complete EDID selection, press the 'Right' button and then press the 'Up' or 'Down' buttons to select which input port to copy EDID to, press the 'Right' button again to confirm this operation. **2.** PTP Set: Press the 'Right' button to set PTP mode (point to point, means IN1-OUT A, IN2-OUT B, IN3-OUT C...). **3.** Save Preset: Press the 'Right' button to save the current configuration to preset, press the 'Up' or 'Down' buttons to select a storage location, and then press the 'Right' button to confirm this operation. **4.** Recall Preset: Press the 'Right' button to recall a previous preset, press the 'Up' or 'Down' buttons to select a preset you want, press the 'Right' button to confirm. **5.** View IP: Press the 'Right' button to check IP address and DHCP status. **6.** Select Baud: Press the 'Right' button, then press the 'Up' or 'Down' button to select baud, press the 'Right' button to confirm this operation. **7.** Factory Reset: Press the 'Right' button to set factory reset status, then press the 'Right' button to confirm this operation or the 'Left' button to quit this operation.
4	Power button and Power LED	Long press this button to power on/off the device. The LED will illuminate in green when the device is power on and show in red when this device is standby

The EDID table:

EDID Mode	EDID Description
1	720P 2.0 CH
2	1080P 2.0 CH
3	1080P 5.1 CH
4	1080P 7.1CH
5	1080I 2.0 CH
6	1080I 5.1 CH
7	1080I 7.1CH
8	3D 2.0 CH
9	3D 5.1 CH
10	3D 7.1 CH
11	4K*2K@30 2.0 CH
12	4K*2K@30 5.1 CH
13	4K*2K@30 7.1 CH
14	4K60_420 2.0CH

EDID Mode	EDID Description
15	4K60_420 5.1CH
16	4K60_420 7.1CH
17	4K*2K@60 2.0 CH
18	4K*2K@60 5.1 CH
19	4K*2K@60 7.1 CH
20	Copy HDMI Out A
21	Copy HDMI Out B
22	Copy HDMI Out C
23	Copy HDMI Out D
24	Copy HDMI Out E
25	Copy HDMI Out F
26	Copy HDMI Out G
27	Copy HDMI Out H

Rear Panel



No.	Name	Function Description
5	CONTROL	LAN: connects to an active Ethernet link by an RJ-45 cable. RS-232: Connect to a PC or control system by DSub 9-pin cable to control the matrix with RS-232 commands.
6	AUDIO OUTPUT	Connect to audio amplifiers or speakers.
7	GND	Connect the GND port to the ground.
8	HDMI INPUT	Connect to the HDMI input source devices such as a DVD player or Set-top Box.
9	HDMI OUTPUT	Connect to the HDMI output source devices such as a TV player or monitor.
10	IR EXT	If the front IR sensor of unit is obstructed or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to this IR EXT port to extend IR signal.
11	DC	12V Plug the 12V/3A adapter to AC wall outlet for power supply.

IR Remote

1. **Power on or Standby**: Power on the Matrix or set it to standby mode.
2. **Input 1/2/3/4/5/6/7/8**: Select input source button. ◄ ► : Select the last or next input source button.
3. **Output 1/2/3/4/5/6/7/8 button**: Select output source button.

All: Select all output sources simultaneously. For example, when you press the “All” button and then press input “1” button, at this time the input “1” source will output to all display devices.

Operation instruction: You need to press the output button first and then press the input button to select the corresponding input source.

For example:

Press Output-X

(X means output button from 1 to 8 , including “All” button)

Then press Input-Y

(Y means input button from 1 to 8)

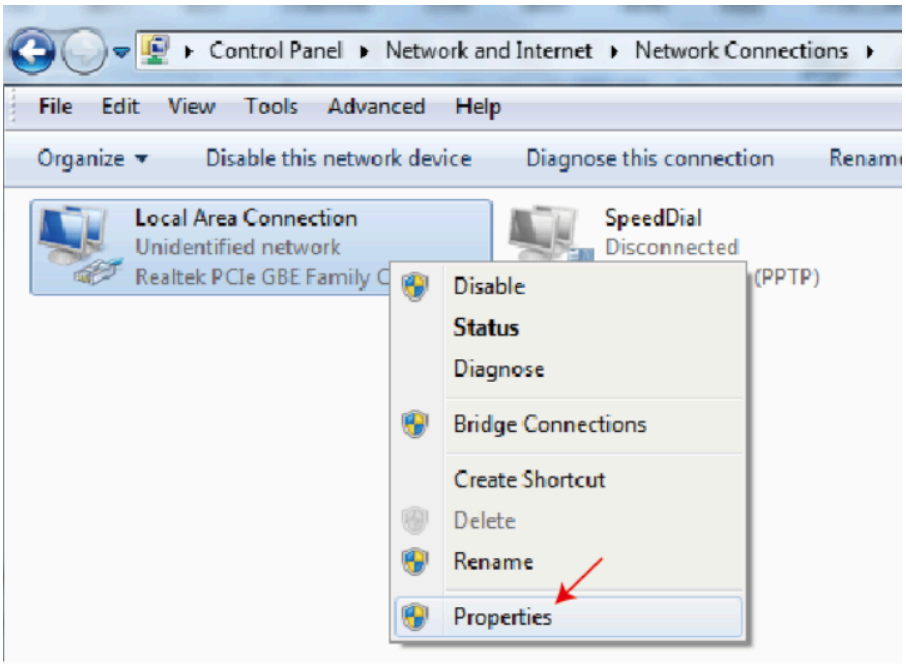
How to Access the Web Interface

The Matrix can be controlled via a Web based user interface. You must know the current IP address of the matrix to access it. You can view/find the IP address of the matrix via the front panel buttons. **The default static IP address is 192.168.1.100**.

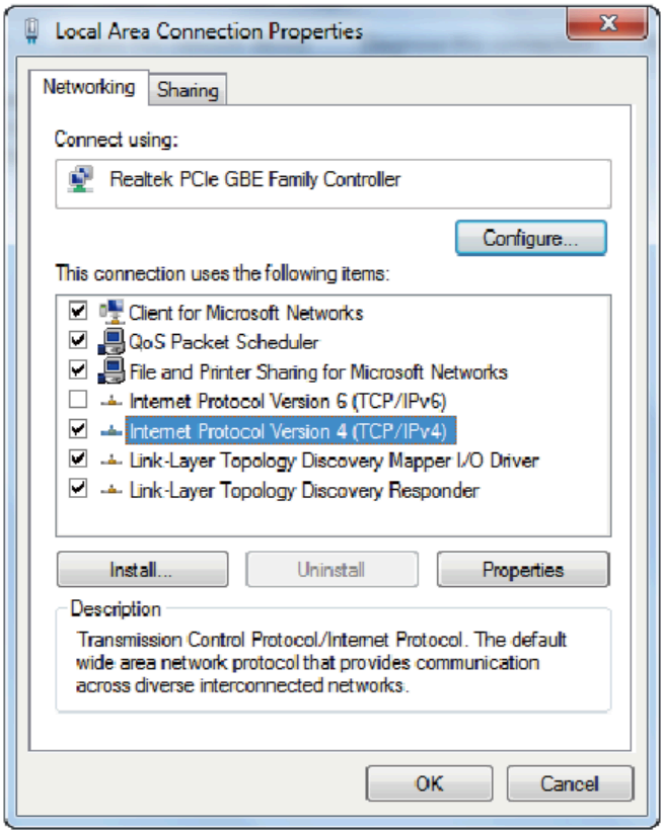
1. On the initial/main display press the “Menu” button to enter settings page.
2. Press the “Up” or “Down” buttons to select “View IP.”
3. Press the "Right" button to check the current IP address and DHCP status.
4. Take note of the current IP address.
5. Follow the steps below to configure your PC to the correct network.

Step 1: Connect the matrix LAN port directly to your PC using an ethernet cable.

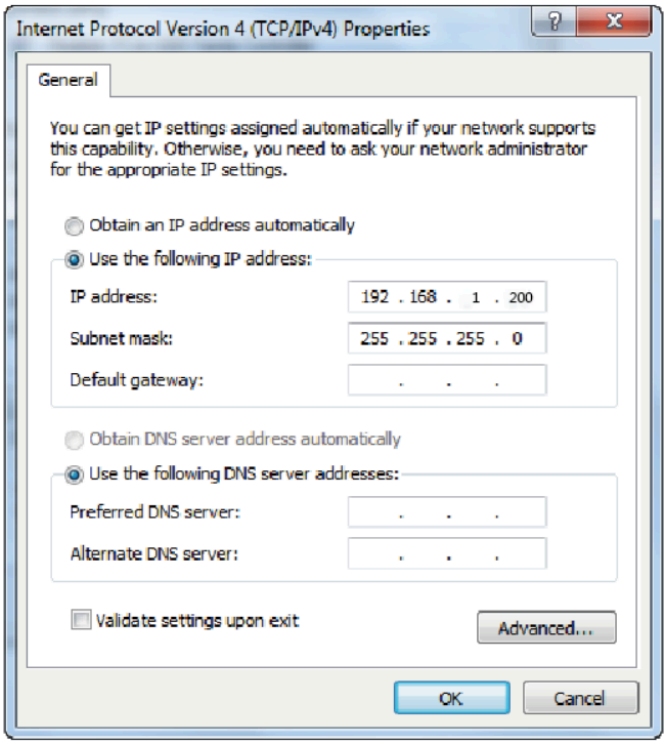
Step 2: On the PC, go to Control Panel> Network and Internet>Network Connections> Right click on Local Area Connections and select “Properties”.



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



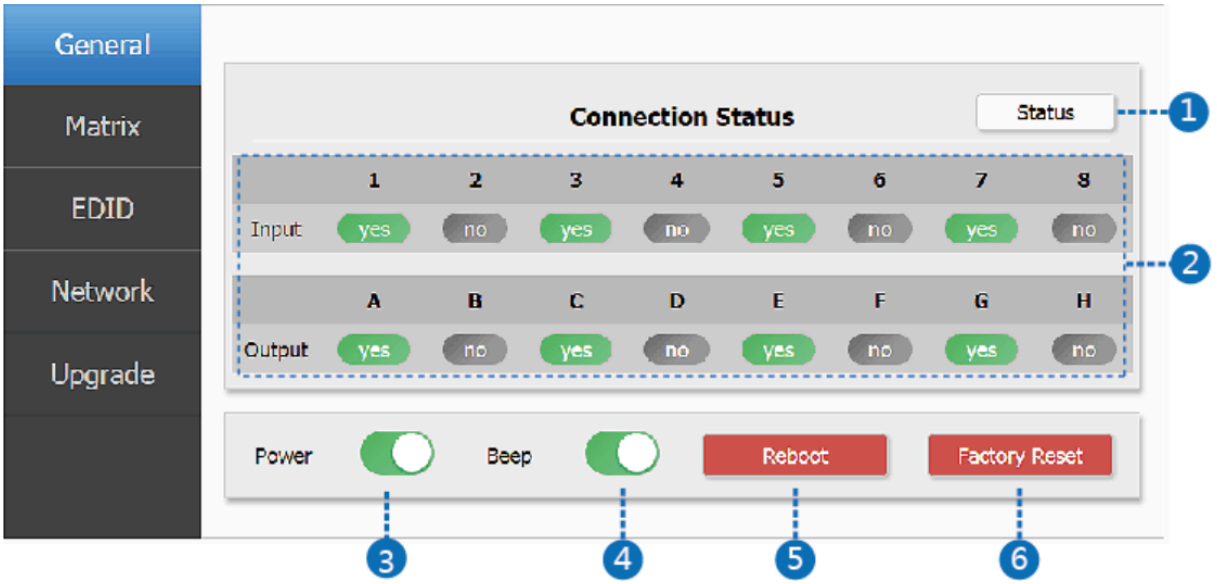
Select “Use the following IP address” input a non-conflicting IP address that matches the scheme of your matrix (default 192.168.1.#). In the example below 192.168.1.200 is used as the IP address, 255.255.255.0 as the Subnet mask, and then click on “OK.”



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

Step 3. Input the IP address from the front panel into a web browser on the connected PC to load the web interface.

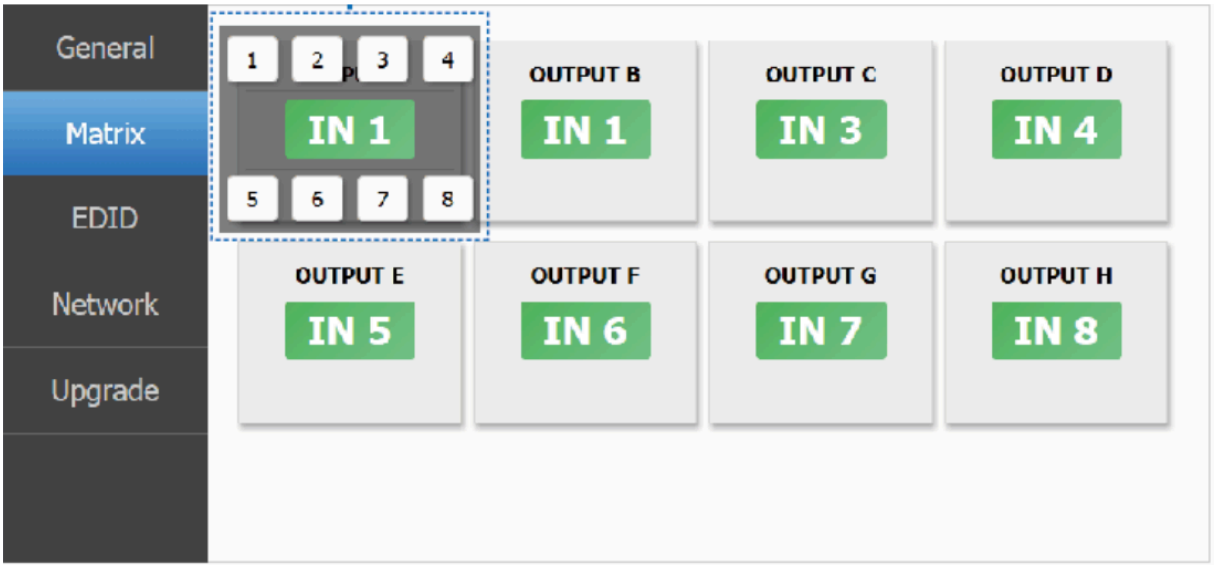
The Web Interface:



1. **Status Button**: Click the “Status” button to check current Matrix connection status.
2. **Connection Status**: Displays the current Matrix input and output port status. If a port has a cable connected input or output will display “yes” and “no” if there is no connection.
3. **Power Switch**: Toggle the switch to place the matrix into standby mode.
4. **Beep Switch**: Enable/Disable the front panel button press beep confirmation.
5. **Reboot Button**: Click the button to power cycle/reboot the matrix.
6. **Factory Reset Button**: Click the button to restore the matrix settings and configuration to factory default settings.

Matrix

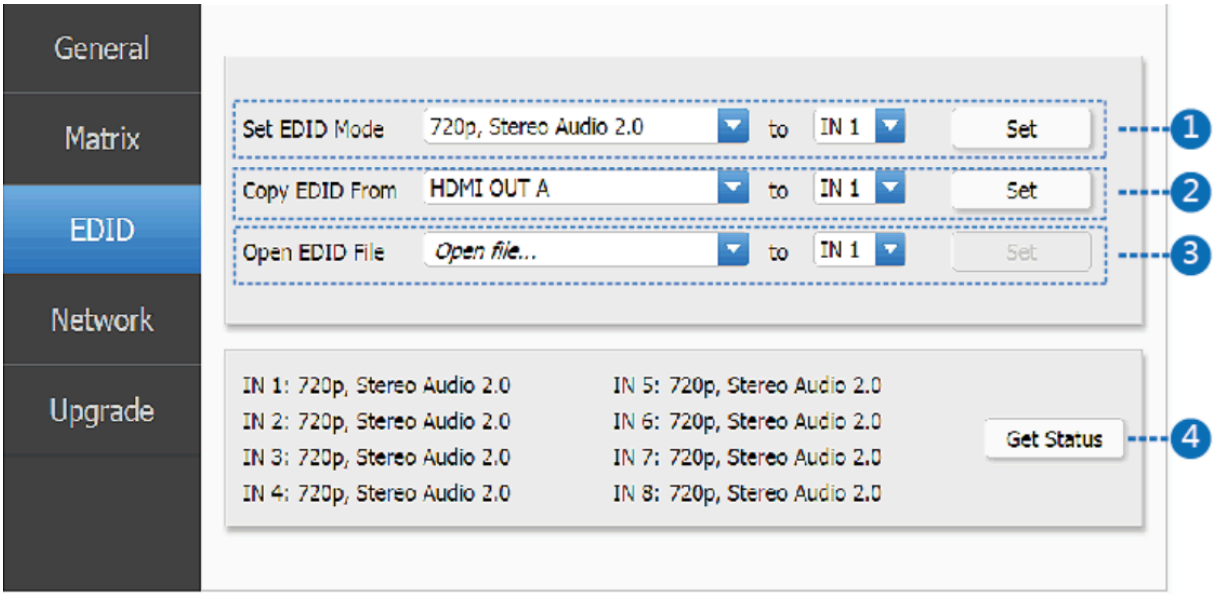
The matrix page is used to control HDMI switching of the matix.



1. Click the green area of the output whose source you would like to change.
2. Select the desired source (1-8) and the connected display will change images.

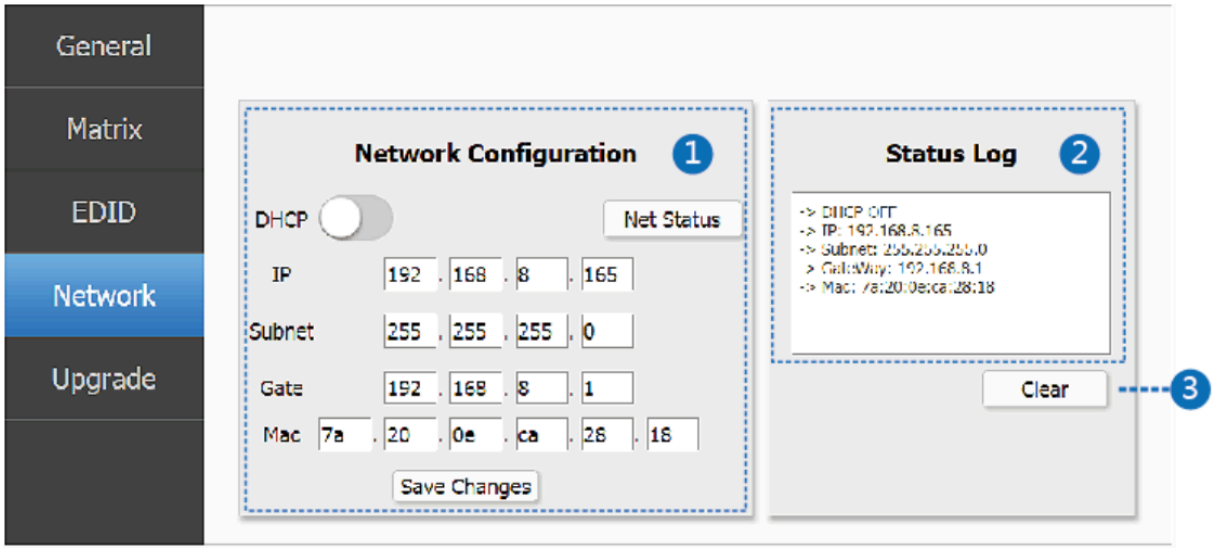
EDID

The EDID page is used to hard set resolution and audio for the given input.



1. **Set EDID Mode:** Select EDID and the input source then click the "**Set**" button.
2. **Copy EDID From:** Copy the EDID information from an output display to the input source and then click the "**Set**" button.
3. **Open EDID File**: Upload an EDID file to the selected input source.
4. **Get Status**: Displays the input source EDID mode status.

Network



1. **Network Configuration:**

   - DHCP Toggle Enabled:

   The matrix will automatically change the following settings: IP address, Subnet, and Gateway. Click the “Save Changes” button to save the DHCP configuration and reboot the matrix.

   - DHCP Toggle Disabled:

   If the DHCP switch is disabled then the user can set IP, Subnet, Gateway information. Click the “Save Changes” button to save the IP configuration and reboot the matrix.

   - Net Status button:

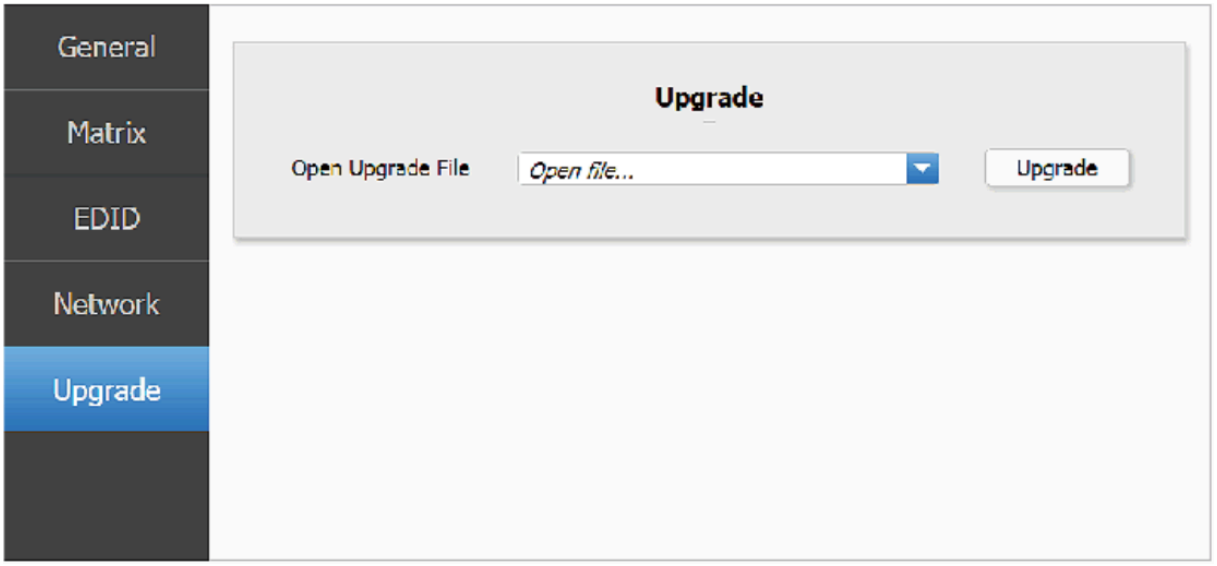
   Clicking this button will refresh the current network configuration information to display in the Status Log.

2. **Status Log:** Display the Network Configuration information.

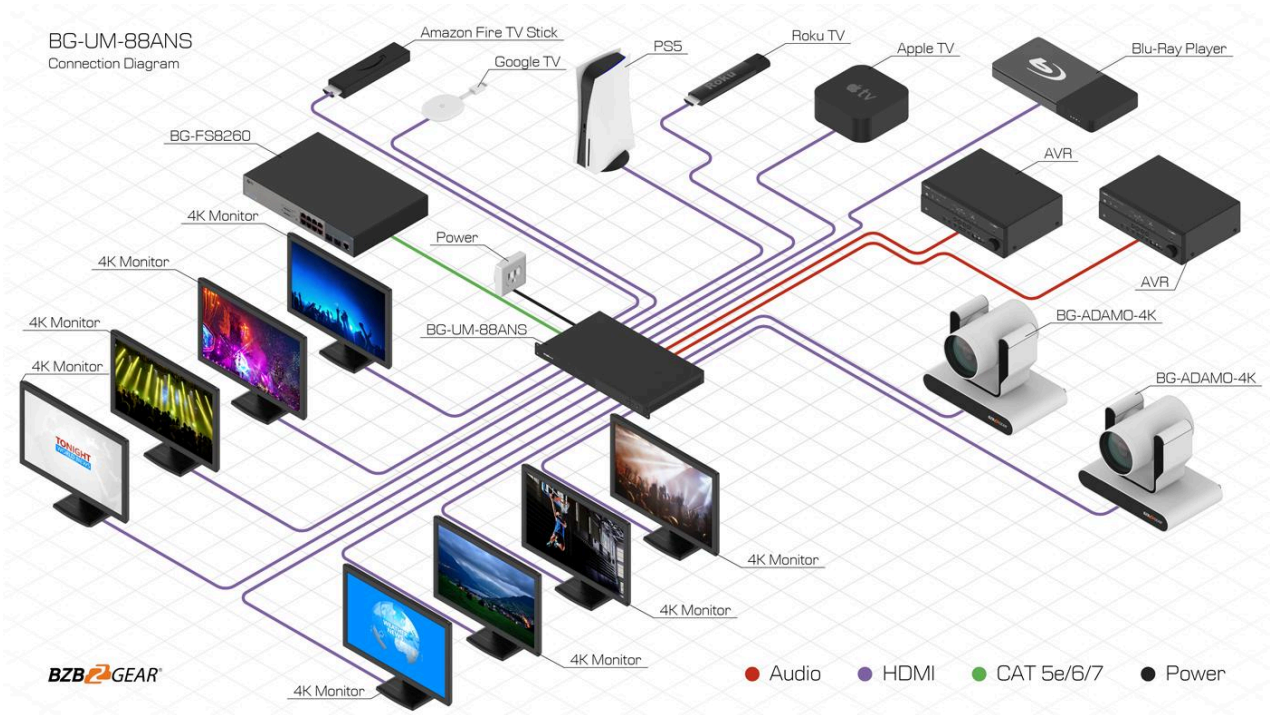
3. **Clear button**: Clear the Status Log information.

Upgrade

Use the Upgrade page to upload firmware upgrade files to the matrix.



Application Example



RS232 Commands

RS232 ASCII Commands		
Serial port protocol: Baud rate(default): 19200, Data bits: 8 Stop bits: 1 Check bit: 0		
RS-232 Command	**Function description**	**Feedback**
s x av y!	Switch x channel input to y channel output	AV x -> y
s x all!	Switch x channel input to all channel output	x to all
r all out!	Get the corresponding switch state between all output port and the input port	AV 1 -> 1, AV 2 -> 2...
r out 1!	Get the corresponding switch state between the x output port and the input port	AV x -> x
s ptp!	one to one between input and output channels	ptp
r link in x!	Get the connection status of the x input port	HDMI INx: connect
r link out x!	Get the connection status of the x output port	HDMI OUTx: disconnect
r link in all!	Get the connection status of all input port	HDMI INx: connect/disconnect
r link out all!	Get the connection status of all input port	HDMI OUTx: connect/disconnect
s x off!	Turn off the x output channel	out x off
s x on!	Turn on the x output channel	out x on
s all off!	Turn off all the output channel	all out off
s all on!	Turn on all the output channel	all out on
s edid x c y!	Copy the display EDID on the x output port to the y input port	copy EDID from output x to input y
s edid x d y!	Copy the built-in EDID number y to the x input port	use default edid y to input x
s edid all c y!	Copy the display EDID on the x output port to all inputs	copy edid from output y to all inputs
s edid all d y!	Copy the built-in EDID number y to all input ports	use default edid y to all input
s edid default!	Restore the default EDID (1080P 2) to each input port	edid default
r edid x!	Get the Edid state of the x input port	IN1: 1080p,Stereo Audio 2.0
r edid all!	Query the EDID status of all ports	IN1: 1080p,Stereo Audio 2.0
s x hdcp 2.2!	Force opening hdcp of the x output port	out x hdcp 2.2
s x hdcp 1.4!	Force opening hdcp of the x output port	out x hdcp 1.4

RS-232 Command	Function description	Feedback
s x hdcp off!	Force shutdown hdcp of the x output port	out x hdcp off
s x hdcp auto!	Automatic management hdcp of x output port	out x hdcp auto
s all hdcp off!	Force shutdown hdcp of the all output port	all out hdcp off
s all hdcp auto!	Automatic management hdcp of all output port	all out hdcp auto
r hdcp in x!	Get the Hdcp state of the x input port	a hdcp in
r hdcp out x!	Get the Hdcp state of the x output port	a hdcp out
r hdcp all in!	Query all input port HDCP status	a hdcp in all
r hdcp all out!	Query all output port HDCP status	a hdcp out all
s beep on!	Open buzzer function	beep on
s beep off!	Cancel buzzer function	beep off
r beep!	Get the switch state of the buzzer	a beep on
s lock on!	Panel lock	lock on
s lock off!	Panel unlock	lock off
r lock!	Get the status of the panel key lock	a lock on
s power on!	Machine boot	power on
s power off!	Machine shutdown	power off
r power!	Query power state	a power on
s rboot!	Machine reboot	rboot
s factory reset!	Restore factory settings	factory reset
r type!	Query matrix model	a HDM-B88
r version!	Query software version	a aa.bb-aa.bb-aa.bb
r status!	Query the status of the entire machine	a aa.bb-aa.bb-aa.bb.cc.dd
s dhcp off!	Set up network module using static IP	ip mode static
s dhcp on!	Set up network modules using dynamic IP	ip mode DHCP
r dhcp!	Get the Dhcp status of the network module	a ip mode DHCP
s ip addr a.b.c.d!	Set the IP address of the network board	a.b.c.d
s mac addr a-b -c-d-e-f !	Set the MAC address of the network board	a-b-c-d-e-f
s subnet a.b.c.d!	Setting subnet mask of network module	a.b.c.d
s gateway a.b.c.d!	Set up network module gateway	a.b.c.d
s port 8000!	Set control port at 8000	8000

RS-232 Command	Function description	Feedback
s network enable!	When configuring network modules, execute all the commands you need to configure first and then execute this command to reboot network modules	
r ip addr!	Get the IP address of the network board	a a.b.c.d <CR>
r mac addr!	Get the MAC address of the network board	a a-b-c-d-e-f <CR>
r subnet !	Get the subnet mask of the network board	a a.b.c.d <CR>
r gateway!	Get the gateway of the network board	a a.b.c.d <CR>
r port!	Get network port number	a 8000 <CR>
s net name ****!	Set the name of the network module	*******
r net name!	Get the name of the network module	a ******* <CR>

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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