BZB2GEAR®

Solutions to Amplify Your World™

BG-UM88-150L-KIT

8X8 4K 18Gpbs UHD HDMI/HDBaseT Matrix Switcher with 2-Way IR/Advance EDID/Downscaling/IP and RS-232 Control

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.

- 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-UM88-150L-KIT is an 18Gbps 8x8 HDBaseT Matrix that can connect 8 HDMI sources to 16 displays. It features 8 HDMI outputs, and each HDMI output is mirrored to provide an HDBaseT output which runs simultaneously. The HDBaseT output can extend video transmission distances up to 492ft or 150m via a single CAT 5e/6/7 cable at a resolution up to 4K@60Hz 4:4:4. Audio can be extracted via balanced LR analog (5-pin phoenix) and digital coaxial audio. Further, each HDMI output independently supports 4K to 1080p downscaling in order to support legacy displays.

The BG-UM88-150L-KIT also supports bi-directional IR matrixing. The matrix has one-to-one control at the transmitter but the IR signal follows the HDMI video channel at the HDBaseT receiver end.

The BG-UM88-150L-KIT can be controlled via an intuitive set of front panel buttons and built-in OLED screen. It also supports control via an included IR remote, RS-232, LAN, and Web GUI.

Features

- HDMI 2.0b, HDCP 2.2 and HDCP 1.x compliant
- Video resolution up to 4K@60Hz (YUV 4:4:4) on all HDMI & HDBaseT ports
- 8 HDMI inputs and 8 HDMI & HDBaseT mirrored outputs
- All outputs transmit at 18Gbps for lossless uncompressed video bandwidth
- Support 4K->1080P Downscaling for each output port
- HDR, HDR10, HDR10+, Dolby Vision, HLG supported
- HDBaseT outputs can extend video transmission distance up to 492ft / 150m for 1080p and 394ft / 120m for 4K via a single Cat 5e/6/7 cable
- HDMI audio pass-through up to 7.1CH HD audio (LPCM, Dolby TrueHD, and DTS-HD Master Audio)
- IR matrixing
- Audio extraction is supported via analog and coax ports
- Advanced EDID management and CEC control
- 24V PoC on all HDBaseT ports
- 1U rack mounted design with front panel OLED display and control
- Control via front panel buttons, IR remote, RS-232, LAN and Web GUI

Packing List

- 1 x 18Gbps 8x8 HDBaseT(150M) Matrix
- 8 x HDBaseT Receiver
- 1 x Matrix IR Remote
- 1 x 100~240V AC 50/60Hz Power cable
- 1 x RS-232 serial cable (1.5 meters, male to female head)

- 8 x 3-pin Phoenix Connectors & 8 x 5-pin Phoenix Connectors
- 9 x IR Blaster cable (1.5 meters)
- 9 x IR Receiver cable (1.5 meters)
- 18 x Mounting Ear (Matrix and Receiver)
- 1x User Manual

Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.x
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@50/60Hz (4:4:4)
Color Space	RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8-bit, 10-bit, 12-bit (1080p@60Hz) 8-bit (4K@60Hz YUV4:4:4) 8-bit, 10-bit, 12-bit (4K2K@60Hz YCbCr 4:2:2/4:2:0)
HDR	HDR10, HDR10+, Dolby Vision, HLG
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus (DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
Coax Audio Formats	PCM 2.0, Dolby Digital / Plus, DTS 2.0/5.1
Analog Balanced Audio Formats	PCM2.0CH
Vmax	2Vrms
SNR	＞90dB
THD+N Ratio	＜0.1％（V_max）0.001％~0.01％（V_best）
Crosstalk	＞80dB
Frequency Response	20Hz~20kHz ±0.5dB
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Connection	
Matrix	Inputs: 8 x HDMI Type A [19-pin female] Outputs: 8 x HDMI Type A [19-pin female] 8 × HDBaseT port [RJ45] 8 × Coaxial audio [RCA] 8 × balanced analog audio [5-pin Phoenix connector] Controls: 9 x IR IN [3.5mm Stereo Mini-jack] 9 x IR OUT [3.5mm Stereo Mini-jack] 1 × TCP/IP [RJ45] 1 × RS-232 [D-Sub 9]
HDBaseT Receiver	Input: 1 x HDBT IN [RJ45, 8-pin female] Outputs: 1 x HDMI Type A [19-pin female] 1 x AUDIO OUT [3.5mm Stereo Mini-jack] Controls: 1 x IR IN [3.5mm Stereo Mini-jack] 1 x IR OUT [3.5mm Stereo Mini-jack] 1 x RS-232 [3-pin Phoenix connector] 1 x SERVICE [Mini-USB, Update port]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Matrix: 440mm (W) × 374mm (D) × 88.6mm (H) Receiver: 140mm (W) x 65mm (W) x 18mm (W)
Weight	Matrix: 6.54Kg, Receiver: 155g
Power Supply	AC 100 - 240V 50/60Hz
Power Consumption	125W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)

Resolution / Distance	4K60 - Feet / Meters		
CAT5e/6/7	492ft / 150M		

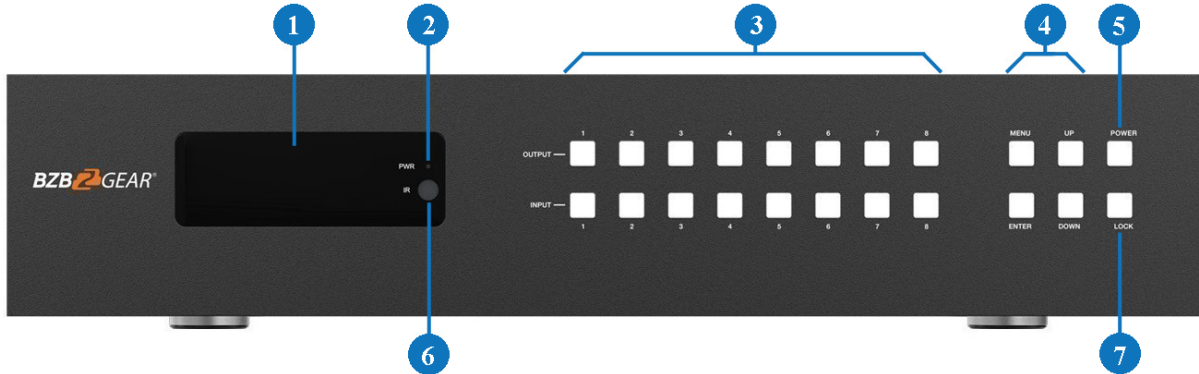| Resolution / Cable length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M

The use of "Premium High-Speed HDMI" cable is highly recommended.

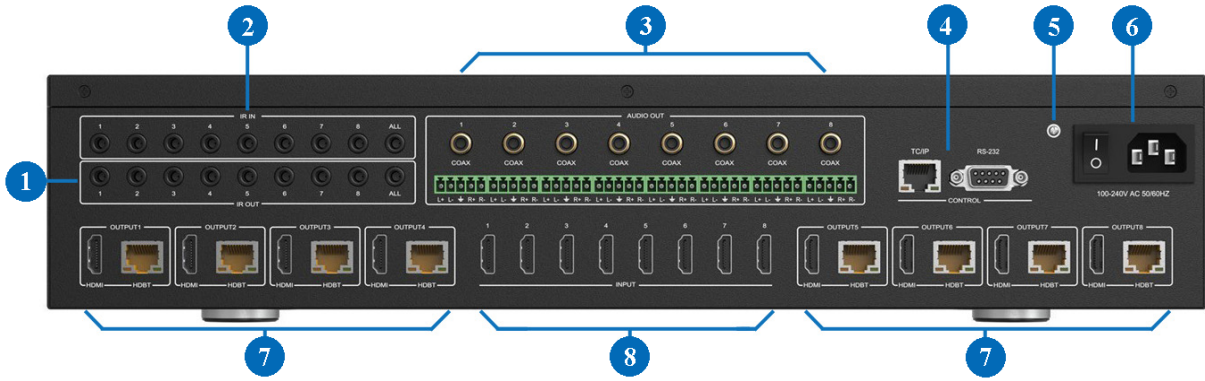# Operation Controls and Functions

Matrix Panel

Front Panel

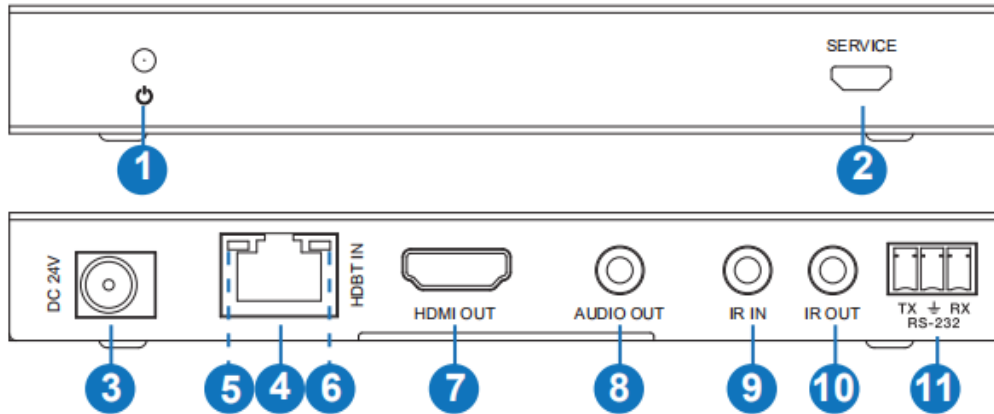| NO.	Name	Function Description
1	OLED screen	Display matrix switching status, input / output port, EDID, Baud rate, and IP Address.
2	Power LED	The LED will illuminate green when the product is working normally and red when the product is in standby.
3	OUTPUT / INPUT	Press an output button (1~8) first and then press an input button (1~8) to select the corresponding input source for the output port.
4	MENU / ENTER / UP /DOWN	1. **EDID settings:** On the initial OLED display screen, press the "MENU" button once to open the "Select EDID" interface. Press the "UP/DOWN" buttons to select the required EDID and press the "ENTER" button to enter the "Copy to Input:" interface. Press the "UP/DOWN" buttons to select the input port you wish to set and press "ENTER" button to confirm. 2. **Baud rate settings:** On the initial OLED display screen press the "MENU" button twice to enter the "SELECT BAUD" interface. Press the "UP/DOWN" buttons to select the required Baud rate and finally press the "ENTER" button to confirm the settings. 3. **IP Address Check:** On the initial OLED display screen, press the "MENU" button three times to enter the IP interface and check the current IP address, then press "UP/DOWN" button to switch DHCP ON/OFF, finally press the "ENTER" button to confirm the setting. Pressing the "MENU" button again will return to the initial OLED display status.
5	POWER button	Press and hold the POWER button for 3 seconds to enter the standby mode, then press the button again to wake up the device.
6	IR Window	IR receiver window, it only receives the IR remote signal from this product.
7	LOCK button	Press the LOCK button to lock front panel buttons (Except the power button); Press the button again to unlock.

Rear Panel

No.	Name	Function Description
1	IR OUT (1-8/ ALL) ports	Connect to the IR blaster cable, the IR emit signal is from the "IR IN" port of the HDBaseT Receiver.
2	IR IN (1-8/ALL) ports	Connected to the IR receiver cable, the IR receive signal will emit to the "IR OUT" port of the HDBaseT Receiver.
3	AUDIO OUT (1-8) ports	8 groups of coaxial and balanced analog audio mirrored output ports. AUDIO OUT (1-8) follows the video output of OUTPUT (1-8) ports.
4	CONTROL ports	TCP/IP: The link port for TCP/IP control. Connect to an active Ethernet link with an RJ45 cable.
		RS-232: Command control port. Connect to a PC or control system with a D-Sub 9-pin cable to control the Matrix.
5	GND	Connect the housing to the ground.
6	POWER input	Power port: Connect to 100~240V AC 50/60Hz power cable. Power switch: Press the switch to turn on/off the power.
7	OUTPUT (1-8) ports	HDMI output ports, connect to HDMI display devices such as a TV or monitor with an HDMI cable.
		HDBT mirrored output ports, connect to HDBaseT Receiver via CAT cable.
8	INPUT (1-8) ports	HDMI input ports, connect to HDMI source devices such as a Bluray/media player with an HDMI cable.

| Data Signal Indicator Lamp | | Connection Signal Indicator Lamp |

- Solid: HDMI signal with HDCP.

- Flashing: HDMI signal without HDCP.

- Dark: No HDMI signal.

- Solid: Matrix and HDBaseT Receiver are in good connection status.
- Flashing: Matrix and HDBaseT Receiver are in poor connection status.
- Dark: Matrix and HDBaseT Receiver are not connected.

HDBaseT Receiver Panel

No.	Name	Function Description
1	Power LED	Red LED will be on when the receiver is powered on.
2	SERVICE port	Firmware update port.
3	DC 24V	DC 24V/1A power supply input port. Note: The Matrix supports power over cable (PoC), which means that the receiving unit does not need a power supply.
4	HDBT IN	RJ45 connector for connecting the HDBT OUTPUT port of Matrix with a CAT cable.
5	Connection Signal Indicator lamp	▪ Solid: Matrix and Receiver are in good connection status. ▪ Flashing: Matrix and Receiver are in poor connection status. ▪ Dark: Matrix and Receiver are not connected.
6	Data Signal Indicator	▪ Solid: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
7	HDMI OUT	HDMI output port, connect to HDMI display device such as TV or monitor with HDMI cable.
8	AUDIO OUT	Analog audio output port. The audio is extracted from the HDMI signal.
9	IR IN	Connect to the IR receiver cable, the IR receive signal will emit to the "IR OUT" on the Matrix.
10	IR OUT	Connect to IR blaster cable and the IR emit signal will be from the "IR IN" port of the Matrix.
11	RS-232	Connect to a PC or control system with a 3-pin phoenix connector cable to transmit command between the Matrix and HDBaseT Receiver.

IR Remote
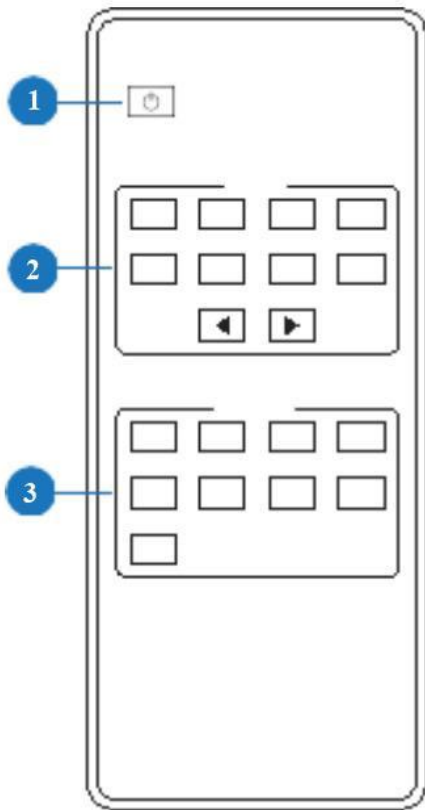
1. **Power on or Standby:** Power on the Matrix or set it to standby mode.

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 outputs to play one source simultaneously. For example, when you press the "All" button and then press input the "1" button, the input "1" source will output to all display devices.

Operation instruction: First press an output button and then press an input button to select the corresponding input source.

IR Control System

This unit supports bi-directional IR control. When Matrix is connected to an HDBaseT Receiver through Cat 5e/6/7 cable, you can control a remote display device (receiver end) or input source device (Matrix end) through IR signal transmission. **Note**: the IR signal transmission method is different from Matrix (local) to HDBaseT Receiver (remote) and from HDBaseT Receiver (remote) to Matrix (local).

At the Matrix end (Local end): the IR signal is one-to-one transmission. For example, the IR IN 1 port signal of the Matrix will emit to IR OUT port of the HDBaseT Receiver 1, and the IR IN 3 port signal of the Matrix will emit to IR OUT port of the HDBaseT Receiver 3. It doesn't follow the video switch to change. IR IN ALL port signal of the Matrix will emit to all IR OUT ports of HDBaseT receivers simultaneously. Please see the following connection diagram.
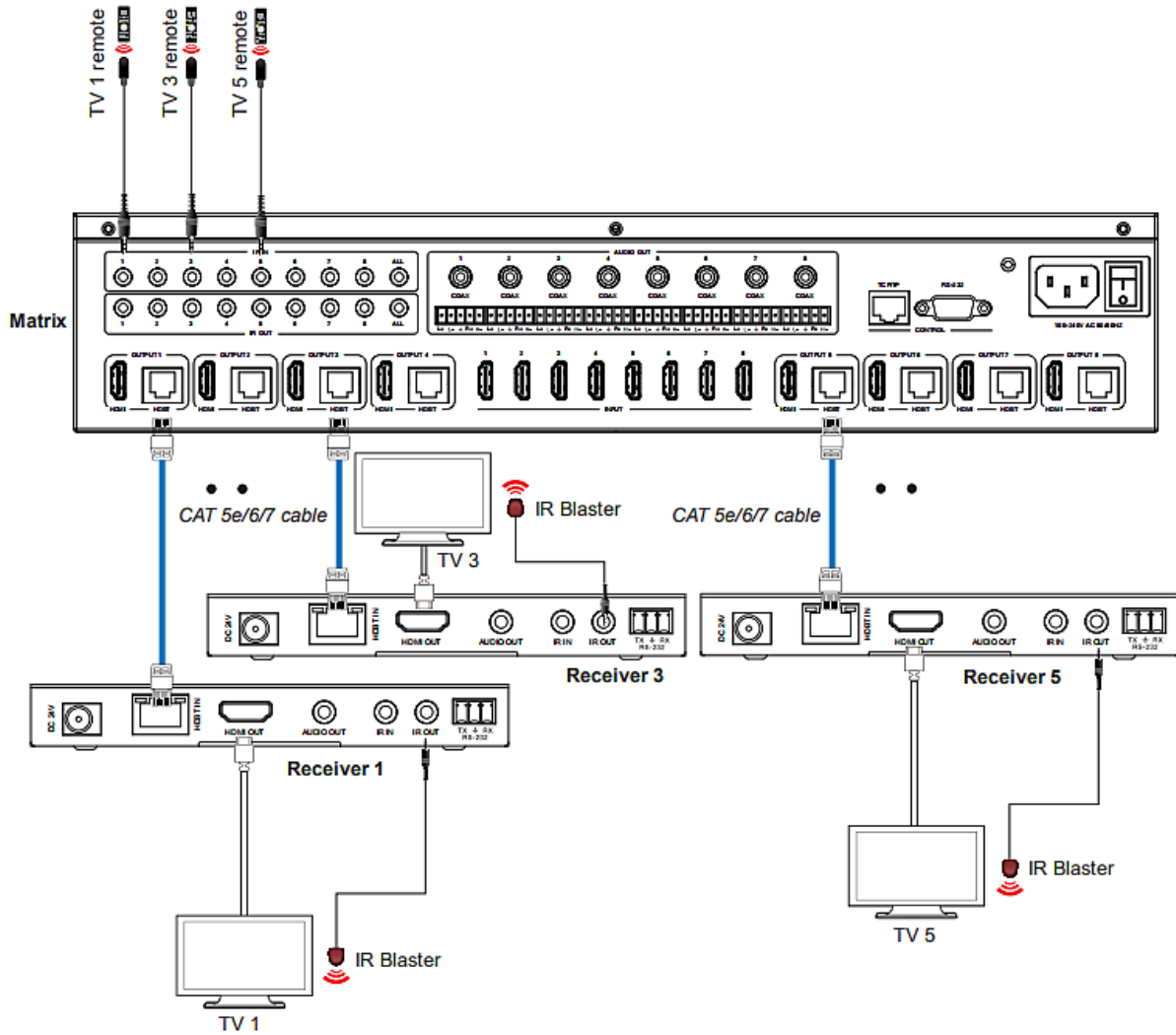

Figure 1: IR connection diagram (Matrix end)

At HDBaseT receiver (Remote end): IR signal follows the video switch and changes. For example, the HDMI output signal on the HDBaseT Receiver 1 is from the HDMI INPUT 2, so the IR input signal of the HDBaseT Receiver 1 will emit to the IR OUT 2 port of the Matrix. The HDMI output signal on the HDBaseT Receiver 5 is from the HDMI INPUT 4. Then, the IR input signal of the HDBaseT Receiver 5 will emit to IR OUT 4 port of the Matrix etc. Any HDBaseT Receiver's IR IN signal can output from the IR OUT ALL port of the Matrix and the IR OUT ALL signal of the Matrix depends on your IR remote source device. Please see the following connection diagram.
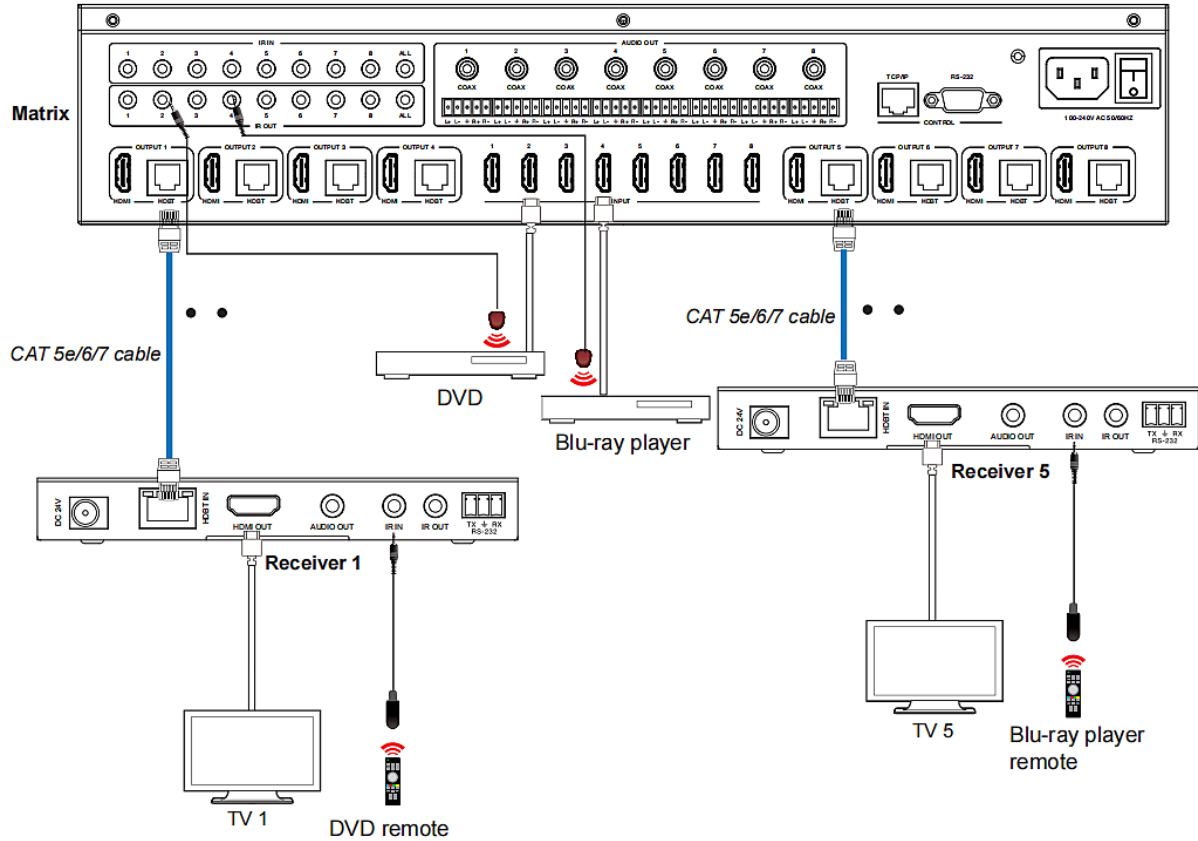

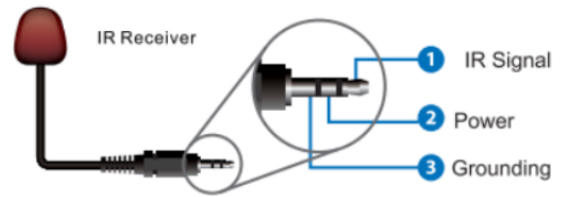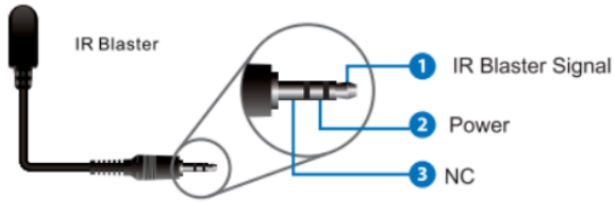**Figure 2: IR connection diagram (HDBaseT Receiver end)**

IR Cable Pin Assignment

IR RECEIVER

IR BLASTER

IR Blaster

1. IR Blaster Signal
2. Power
3. NC

IR Receiver

1. IR Signal
2. Power
3. Grounding

EDID Management

This Matrix has 21 factory defined EDID settings, 2 user-defined EDID modes and 16 copy EDID modes. You can select defined EDID mode or copy EDID mode to input port through the on-panel buttons, RS-232 control, or Web GUI.

On-panel button operation: On the initial OLED display screen, press the "MENU" button to enter the EDID setting interface. Next, press the "UP/DOWN" buttons to select the required EDID, and press the "ENTER" button to enter the "Copy to Input:" interface. Then press the "UP/DOWN" buttons to select the input port you need to set, and press the "ENTER" button again to confirm this operation.

RS-232 control operation: Connect the Matrix to PC with a serial cable, then open a Serial Command tool on PC to send ASCII command's EDID in x from z!" to set EDID. For details, please refer to "EDID Setting" in the ASCII command list section in this manual.

Web GUI Operation: Please check the EDID management in the "Input page" of Web GUI User Guide section of this manual.
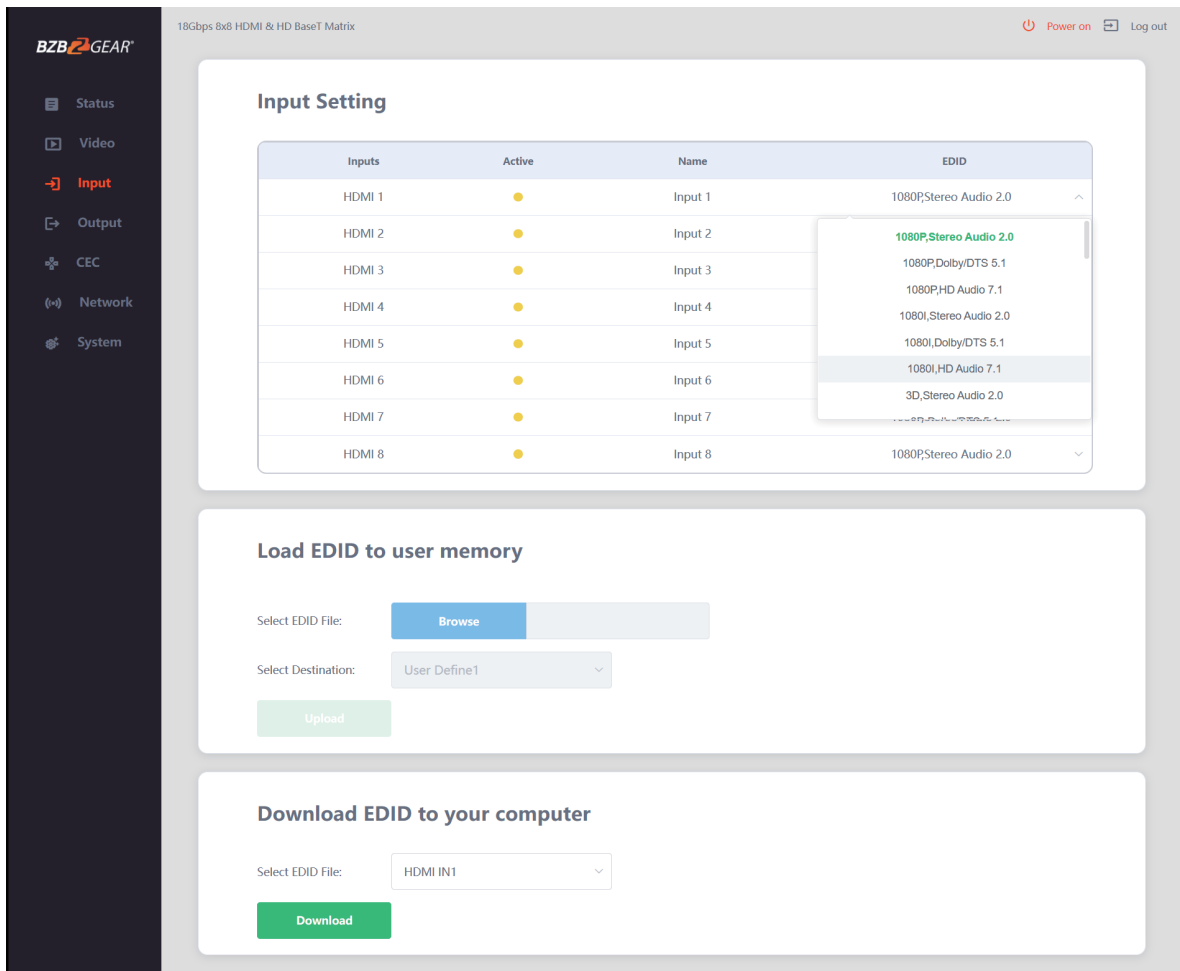
EDID Settings:

EDID Mode	EDID Description
1	1080p, Stereo Audio 2.0
2	1080p, Dolby/DTS 5.1
3	1080p, HD Audio 7.1
4	1080i, Stereo Audio 2.0
5	1080i, Dolby/DTS 5.1
6	1080i, HD Audio 7.1
7	3D, Stereo Audio 2.0
8	3D, Dolby/DTS 5.1
9	3D, HD Audio 7.1
10	4K2K30_444, Stereo Audio 2.0
11	4K2K30_444, Dolby/DTS 5.1
12	4K2K30_444, HD Audio 7.1
13	4K2K60_420, Stereo Audio 2.0
14	4K2K60_420, Dolby/DTS 5.1
15	4K2K60_420, HD Audio 7.1
16	4K2K60_444, Stereo Audio 2.0
17	4K2K60_444, Dolby/DTS 5.1
18	4K2K60_444, HD Audio 7.1
19	4K2K60, Stereo Audio 2.0 HDR
20	4K2K60, Dolby/DTS 5.1 HDR
21	4K2K60, HD Audio 7.1HDR
22	User define1
23	User define2
24~31	Copy from HDMI OUTPUT 1~8
32~39	Copy from HDBT OUTPUT 1~8

Web GUI User Guide

The Matrix can be controlled through a web interface and its operation is shown below.

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

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

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

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

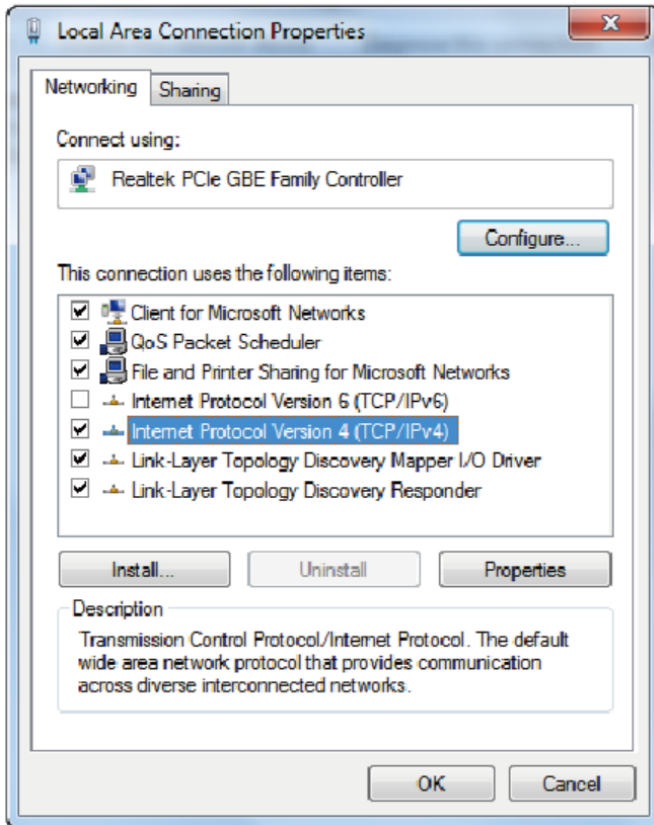For the details of ASCII control, please refer to the ASCII section of this manual.

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

Step 3: On the PC, go to Control Panel> Network and Internet> Network Connections> Right click on Local Area Connections and select "Properties".
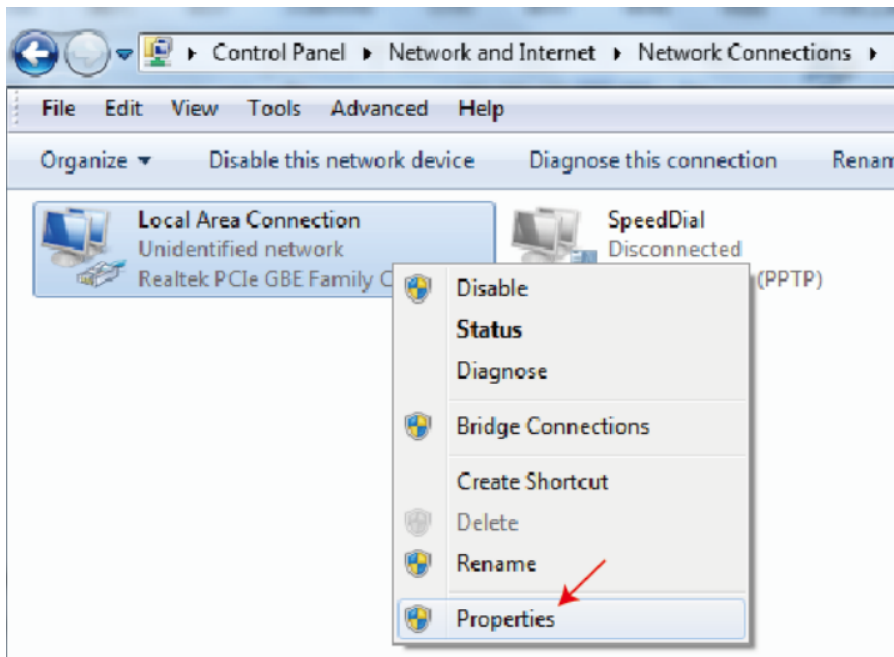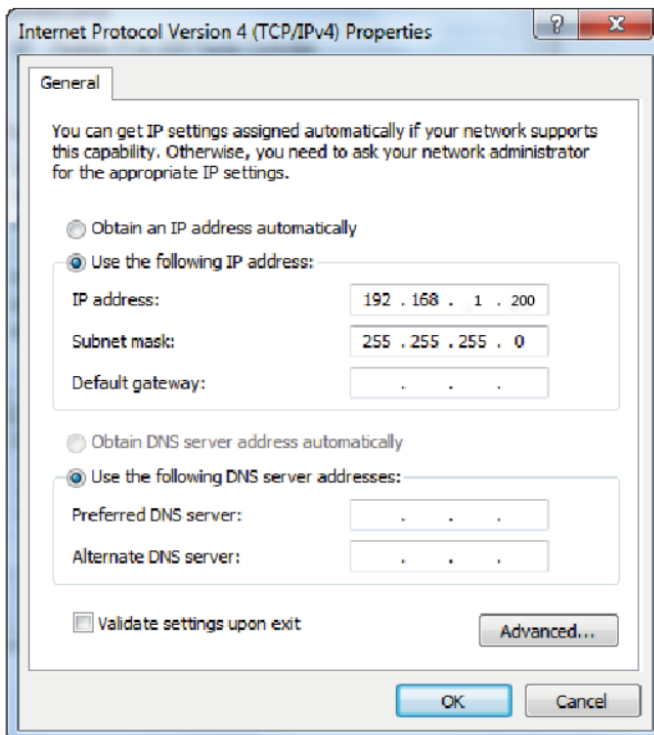
Step 4: Double click "Internet Protocol Version 4 (TCP/IPv4)"

Step 5: Select "Use the following IP address" input a non-conflicting IP address that matches the scheme of your matrix (default 192.168.1.#). In the example below 192.168.1.200 is used as the IP address, 255.255.255.0 as the Subnet mask, and then click on "OK."
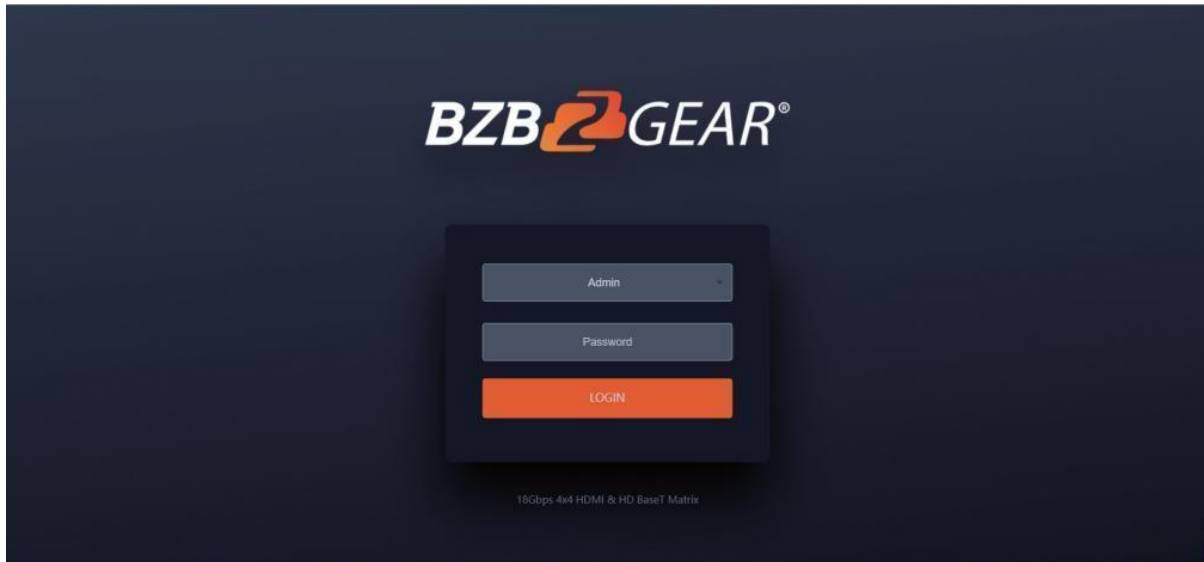
Note: The IP address of the computer and matrix should be in the same network segment. If the matrix's IP address is 192.168.10.100, the computer's IP should be 192.168.10.X where X is 1~255 except 100.

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

After entering the Web GUI page, there will be a Login page, as shown below:

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

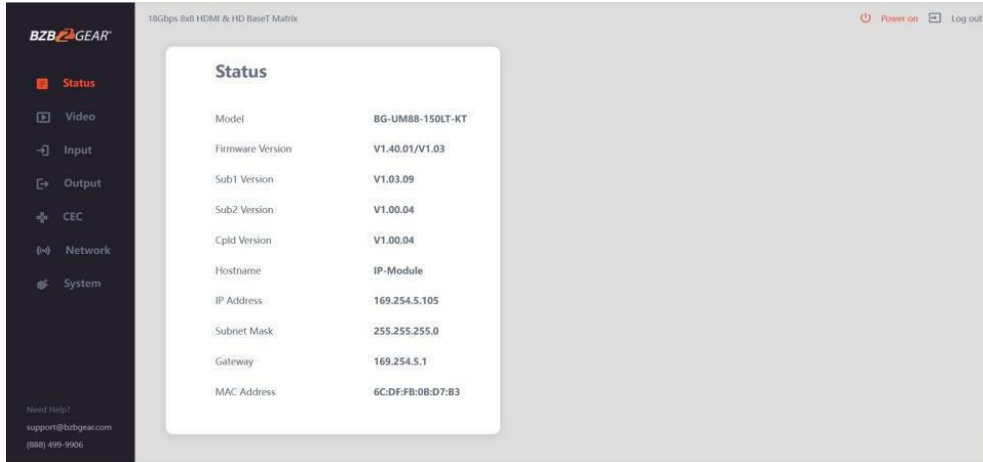| Username	**User**	**Admin**
Password	**user**	**admin**

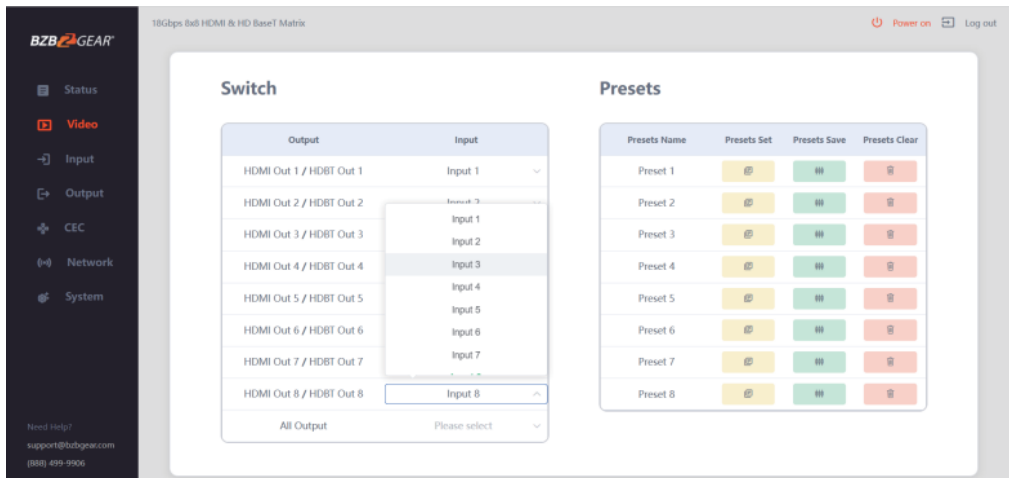After entering the password, click the "LOGIN" button and the following Status page will appear.

Status Page

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

Video Page

You can do the following operations on the Video page:

1. **Output**: The current device's OUTPUT port. You can select a signal source for it.

2. **Input**: You can click the drop-down menu to select signal source for the corresponding OUTPUT port.

3. **Presets Name**: You can name the current scene with a maximum length of 12 characters.

4. **Presets Set**: You can restore the settings of a previously saved matrix preset.

5. **Presets Save**: You can save an audio-video matrix switching configuration.

6. **Presets Clear:** You can clear the saved audio-video matrix configuration.

Input Page

You can do the following operations on the Input page:

1. **Inputs**: Input channel of the device.
2. **Active**: It indicates whether the channel is connected to a signal source.
3. **Name**: You can modify the input channel name by entering up to 12 characters..
4. **EDID**: You can set the current channel's EDID. The specific operation is as follows:

Set EDID for the User

Click the "Browse" button, then select the bin file. If you select the wrong EDID file, there will be a prompt "invalid EDID file."

Next, select "User 1" or "User 2" and then click "Upload". After successfully uploading, it will prompt "Upload Success!"

Download the EDID File to your computer

Click the drop-down box of "Select EDID File" to select the input whose EDID information you wish to save. Then click "Download" to download the corresponding EDID file.

Output Page

You can do the following operations on the Output page:

1. **Outputs**: Output channel of the device.

2. **Name**: The current output channel's name. You can modify it by entering up to 12 characters.

3. **Type**: The current output channel's type (HDMI or HDBT).

4. **Cable**: It indicates the connection status of output ports. When the output port is connected to the display, it shows green, otherwise, it shows yellow.

5. **Scaler Mode**: Set the selected output resolution to either Bypass, downscale from 4K to 1080p or auto and have the matrix attempt to choose the best option.

6. **Stream**: Turn on/off the output stream

CEC Page
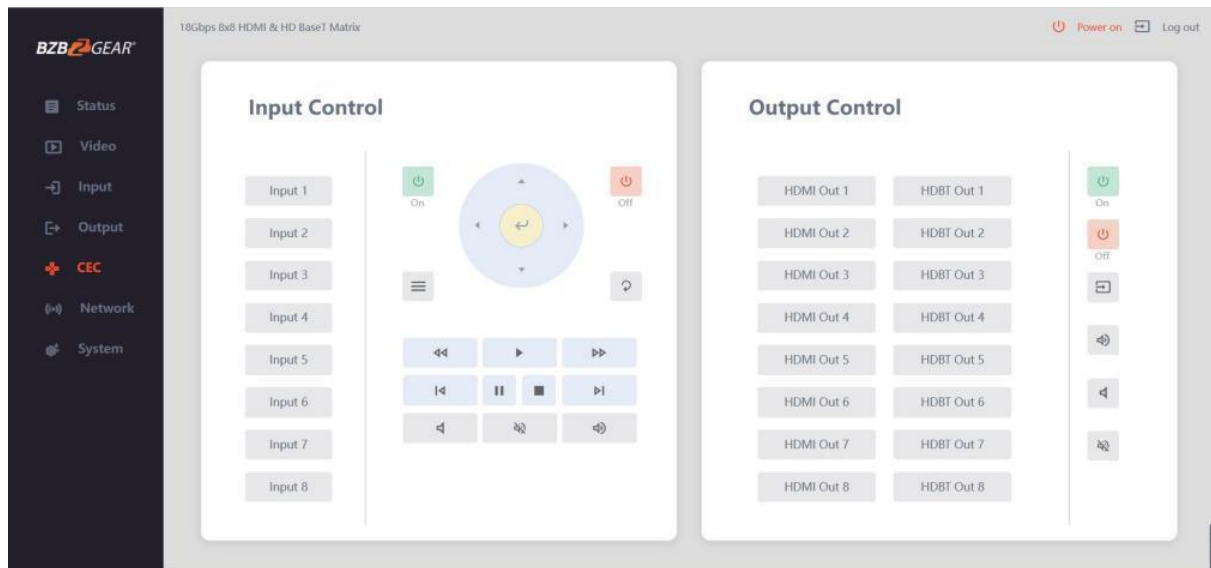
1. **Input Control**: You can control the operation of each input source by pressing the icons on the page. You can control multiple inputs simultaneously..

2. **Output Control**: You can control the operation of each display, such as power on/off, volume +/-, active source switching. You can control multiple outputs simultaneously.

Note: Not every device will be compatible with CEC commands or have the ability to use each feature.

Network Page

Set the Default Network

Click "Set Network Defaults" button and there will be a prompt, as shown in the following figure:

Click "OK" and the matrix will automatically search for the default IP.

After the search is completed, it will switch to the login page with the default network settings.

Modify User Password

Click the "User" button, enter the correct Old Password, a New Password, Confirm the New Password, and then click "Save". After successful modification, there will be a prompt, as shown in the following figure:

modify successfully!
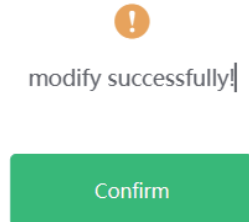
Confirm

Rules for changing passwords:

1. The password field cannot be empty.

2. The new password cannot be the same as the old password.

3. The new password and confirm password must be the same.

Modify Network Setting

If the Mode is set to "Static" modify the IP Mode/IP Address/Gateway/Subnet Mask/Telnet Port as required and then click "Save" to save the settings. The matrix will switch to the corresponding IP Address. If the Mode is "DHCP", it will automatically search and switch to the IP Address assigned by the router/network.

IP Setting

IP Mode	Static	DHCP
IP Address	169.254.5.105	
Subnet	255.255.255.0	
Gateway	169.254.5.1	
Telnet Port	23	

System Page
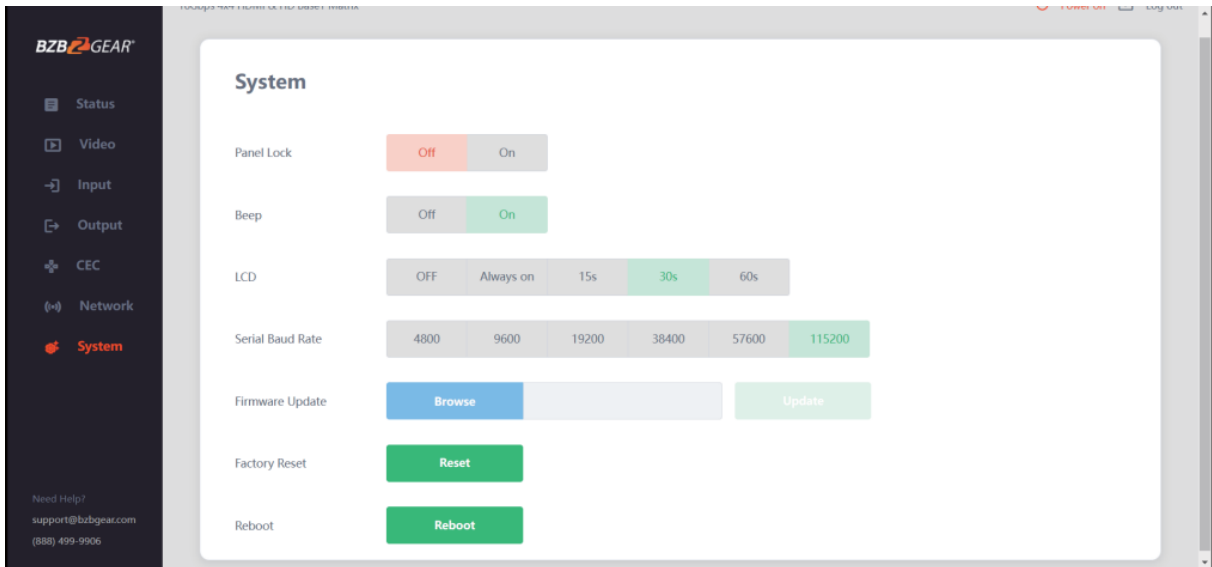
1. **Panel Lock**: Click to lock/unlock panel buttons. "On" indicates that panel buttons are unavailable; "Off" indicates panel buttons are available.
2. **Beep**: Click to turn on/off the settings change confirmation beep.
3. **LCD**: You can turn on/off the LCD, and set the active display time (15s/30s/60s).
4. **Serial Baud Rate**: Click the value to set the Serial Baud Rate.
5. **Firmware Update**: Click "Browse" to select the update file and then click "Update" to complete a firmware update.
6. **Factory Reset**: You can reset the machine to factory defaults by clicking "Reset".
7. **Reboot**: You can reboot the machine by clicking "Reboot".

Note: After a reset/reboot, the matrix will switch to the login page.

RS-232 Control Commands

The product supports RS-232 control. You will need a serial cable with RS-232 male head and DB9 transfer USB male head. The RS-232 head of the serial cable is connected to the RS-232 control port with DB 9 at the rear of the Matrix, and the USB head of the serial cable is connected to a PC. The connection method is as follows:
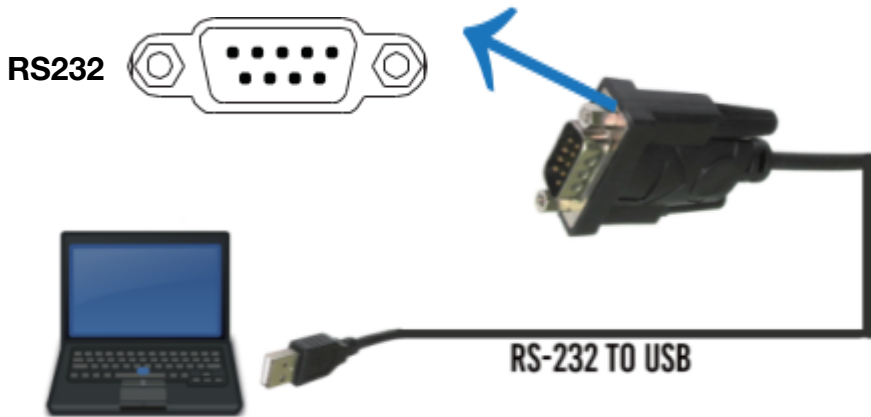
Open a Serial Command tool on a PC such as Access Port or DockLite to send ASCII commands to control the Matrix. The ASCII command list is shown below.

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

Command Code	Function Description	Example	Feedback	Default Setting
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	Power on System Initializing... Initialization Finished! FW version x.xx.xx	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	Reboot... System Initializing... Initialization Finished! FW version x.xx.xx	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	HDP-MXB88H150	
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/ out connection, video/ audio crosspoint, edid, scaler,hdcp, network status	
r fw version!	Get Firmware version	r fw version!	MCU BOOT:Vx.xx.xx MCU APP :Vx.xx.xx SUB1 APP :Vx.xx.xx SUB2 APP :Vx.xx.xx CPLD APP :Vx.xx.xx WEB GUI :Vx.xx	
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	
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 hdbt output 1: connect	
s reset!	Reset to factory defaults	s reset!	Reset to factory defaults System Initializing...	

Command Code	Function Description	Example	Feedback	Default Setting
			Initialization Finished! FW version x.xx.xx	
s beep z!	Enable/Disable buzzer function, z=0~1(z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off,z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s lcd on time z!	Set LCD screen remain on time, z=0~4 (0:off, 1:always on, 2:15s, 3:30s, 4:60s)	s lcd on time 1!	lcd always on	lcd on 30 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	lcd always on	
s save preset z!	Save switch state between all output port and the input port to preset z, z=1~8	s save preset 1!	save to preset 1	
s recall preset z!	Call saved preset z scenarios, z=1~8	s recall preset 1!	recall from preset 1	
s clear preset z!	Clear stored preset z scenarios, z=1~8	s clear preset 1!	clear preset 1	
r preset z!	Get preset z information, z=1~8	r preset 1!	video/audio crosspoint	
s logo1 ***************!	Set the logo name displayed on the first line of LCD screen, the max character is 16	s logo1 Matrix Swtich!	logo1:Matrix Swtich	
s baud rate xxx!	Set the serial port baud rate of RS02 module, z=(115200,57600, 38400,19200,9600,4800)	s baud rate 115200!	Baudrate:115200	115200
r baud rate!	Get the serial port baud rate of RS02 module	r baud rate!	Baudrate:115200	
s id z!	Set the control ID of the product, z=000~999	s id 888!	id 888	0
Output Setting				
s in x av out y!	Set input x to output y, x=1~8, y=0~8(0=all)	s in 1 av out 2!	input 1 -> output 2	ptp
r av out y!	Get output y signal status y=0~8(0=all)	r av out 0!	input 1 -> output 1 input 2 -> output 2 …… input 8 -> output 8	
s hdmi y stream z!	Set hdmi output y stream on/off, y=0~8(0=all) z=0~1(0:disable,1:enable)	s hdmi 1 stream 1! s hdmi 0 stream 1!	enable hdmi output 1 stream disable hdmi output 1 stream enable hdmi all outputs stream disable hdmi all outputs stream	enable
r hdmi y stream!	Get hdmi output y stream status, y=0~8(0=all)	r hdmi 1 stream!	enable hdmi output 1 stream	
s hdbt y stream z!	Set hdbt output y stream on/off, y=0~8(0=all) z=0~1(0:disable,1:enable)	s hdbt 1 stream 1! s hdbt 0 stream 1!	enable hdbt output 1 stream disable hdbt output 1 stream enable hdbt all outputs stream disable hdbt all outputs stream	enable
r hdbt y stream!	Get hdbt output y stream status, y=0~8(0=all)	r hdbt 1 stream!	enable hdbt output 1 stream	
s hdmi y scaler z!	Set hdmi output y port output scaler mode, y=0~8(0=all), z=1~3(1=bypass,2=4k->1080p, 3=Auto)	s hdmi 1 scaler 1! s hdmi 0 scaler 1!	hdmi output 1 set to bypass mode hdmi all outputs set to bypass mode	hdmi all outputs set to bypass mode
r hdmi y scaler!	Get hdmi output y port output mode y=0~8(0=all)	r hdmi 1 scaler!	hdmi output 1 set to bypass mode	
s hdbt y scaler z!	Set hdbt output y port output scaler mode, y=0~8(0=all), z=1~3(1=bypass,2=4k->1080p, 3=Auto)	s hdbt 1 scaler 1! s hdbt 0 scaler 1!	hdbt output 1 set to bypass mode hdbt all outputs set to bypass mode	hdbt all outputs set to bypass mode

| Command Code	Function Description	Example	Feedback	Default Setting
r hdbt y scaler !	Get hdbt output y port output mode y=0~8(0=all)	r hdbt 1 scaler !	hdbt output 1 set to bypass mode	
EDID Setting				
s edid in x from z!	Set input x EDID from default EDID z, x=0~8(0=all),z=1~39 1, 1080p,Stereo Audio 2.0 2, 1080p,Dolby/DTS 5.1 3, 1080p,HD Audio 7.1 4, 1080i,Stereo Audio 2.0 5, 1080i,Dolby/DTS 5.1 6, 1080i,HD Audio 7.1 7, 3D,Stereo Audio 2.0 8, 3D,Dolby/DTS 5.1 9, 3D,HD Audio 7.1 10, 4K2K30_444,Stereo Audio 2.0 11, 4K2K30_444,Dolby/DTS 5.1 12, 4K2K30_444,HD Audio 7.1 13, 4K2K60_420,Stereo Audio 2.0 14, 4K2K60_420,Dolby/DTS 5.1 15, 4K2K60_420,HD Audio 7.1 16, 4K2K60_444,Stereo Audio 2.0 17, 4K2K60_444,Dolby/DTS 5.1 18, 4K2K60_444,HD Audio 7.1 19, 4K2K60_444,Stereo Audio 2.0 HDR 20, 4K2K60_444,Dolby/DTS 5.1 HDR 21, 4K2K60_444,HD Audio 7.1 HDR 22, User define1 23, User define2 24~31, copy from hdmi output 1~8 32~39, copy from hdbt output 1~8	s edid in 1 from 1! s edid in 0 from 1!	input 1 EDID:1080p, Stereo Audio 2.0 all inputs EDID:1080p, Stereo Audio 2.0	1080p, Stereo Audio 2.0
r edid in x!	Get EDID status of the input x, x=0~8(0=all input)	r edid in 0!	input1 EDID: 4K2K60_ 444,Stereo Audio 2.0 input2 EDID: 4K2K60_ 444,Stereo Audio 2.0 …… input8 EDID: 4K2K60_ 444,Stereo Audio 2.0	
r edid data hdmi y!	Get the EDID data of the hdmi output y port, y=1~8	r edid data hdmi 1!	EDID: 00 FF FF FF FF FF FF 00 ………	
r edid data hdbt y!	Get the EDID data of the hdbt output y port, y=1~8	r edid data hdbt 1!	EDID: 00 FF FF FF FF FF FF 00 ………	
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!	input 1 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!	input 1 power off	
s cec in x menu!	set input x open menu by CEC, x=0~8(0=all input)	s cec in 1 menu!	input 1 open menu	
s cec in x play!	set input x play by CEC, x=0~8(0=all input)	s cec in 1 play!	input 1 play operation	
s cec in x pause!	set input x pause by CEC, x=0~8(0=all input)	s cec in 1 pause!	iInput 1 pause operation	
s cec in x stop!	set input x stop by CEC, x=0~8(0=all input)	s cec in 1 stop!	input 1 stop operation	
s cec in x rew!	set input x rewind by CEC, x=0~8(0=all input)	s cec in 1 rew!	input 1 rewind operation	
s cec in x mute!	set input x volume mute by CEC, x=0~8(0=all input)	s cec in 1 mute!	input 1 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-!	input 1 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+!	input 1 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!	input 1 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!	input 1 previous operation	

Command Code	Function Description	Example	Feedback	Default Setting
s cec in x next!	set input x next by CEC, x=0~8(0=all input)	s cec in 1 next!	input 1 next operation	
s cec hdmi out y on!	set hdmi output y power on by CEC, y=0~8(0=all hdmi output)	s cec hdmi out 1 on!	hdmi output 1 power on	
s cec hdbt out y on!	set hdbt output y power on by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 on!	hdbt output 1 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 power off	
s cec hdbt out y off!	set hdbt output y power off by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 off!	hdbt output 1 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 volume mute	
s cec hdbt out y mute!	set hdbt output y volume mute by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 mute!	hdbt output 1 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 volume down	
s cec hdbt out y vol-!	set hdbt output y volume down by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 vol-!	hdbt output 1 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 volume up	
s cec hdbt out y vol+!	set hdbt output y volume up by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 vol+!	hdbt output 1 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 active source	
s cec hdbt out y active!	set hdbt output y active source by CEC, y=0~8(0=all hdbt output)	s cec hdbt out 1 active!	hdbt output 1 active source	
Network Setting				
r ipconfig!	Get the Current IP Configuration	r ipconfig!	IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	
r mac addr!	Get network MAC address	r mac addr!	Mac address: 00:1C:91:03:80:01	
s ip mode z!	Set network IP mode to static IP or DHCP, z=0~1 (z=0 Static, z=1 DHCP)	s ip mode 0!	Set IP mode:Static (Please use "s net reboot!" command or repower device to apply new config!)	
r ip mode!	Get network IP mode	r ip mode!	IP Mode: Static	
s ip addr xxx.xxx.xxx.xxx!	Set network IP address	s ip addr 192.168.1.100!	Set IP address: 192.168.1.100 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config static address, set DHCP off first.	
r ip addr!	Get network IP address	r ip addr!	IP:192.168.1.100	
s subnet xxx.xxx.xxx.xxx!	Set network subnet mask	s subnet 255.255.255.0!	Set subnet Mask address:255.255.255.0 (Please use "s net reboot!" command or repower device to apply new config!) DHCP on, Device can't config subnet mask, set DHCP off first.	
r subnet!	Get network subnet mask	r subnet!	Subnet Mask: 255.255.255.0	
s gateway xxx.xxx.xxx.xxx!	Set network gateway	s gateway 192.168.1.1!	Set gateway: 192.168.1.1 Please use "s net reboot!" command or repower device to apply new config! DHCP on, Device can't config gateway, set DHCP off first.	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.1.1	

Command Code	Function Description	Example	Feedback	Default Setting
s tcp/ip port x!	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000!	Set TCP/IP port:8000	
r tcp/ip port!	Get network TCP/IP port	r tcp/ip port!	TCP/IP port:8000	
s telnet port x!	Set network telnet port (x=1~65535)	s telnet port 23!	Set Telnet port:23	
r telnet port!	Get network telnet port	r telnet port!	Telnet port:23	
s net reboot!	Reboot network modules	s net reboot!	Network reboot… IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01	
s uart x datalen y!	Set the data length of x hdbt uart, x=0-8, y=1-2, 1:8bit 2:7bit	s uart 1 datalen 1!	hdbt uart1 data len is 8bit	
s uart x baudrate y!	Set the baudrate of x hdbt uart , x=0-8, y=1-8, 1: 115200(Default) 2: 57600 3: 56000 4:38400 5:19200 6:14400 7:9600 8:4800	s uart 1 baudrate 1!	hdbt uart1 baudrate is 115200	
s uart x parity y!	Set the Parity of x hdbt uart, x=0-8, y=1-3, 1:none 2:odd 3:even	s uart x parity 1!	hdbt uart1 parity is none	
s uart x type z senddata y end!	Send data y from x hdbt uart, z=0 ascii, z=1 hex ,x=0-8	s uart 1 type 0 senddata abcdefg end!	hdbt uart1 data: abcdefg	
r uart status x!	Get the Status of x hdbt uart , x=0-8	r uart status 1!	hdbt uart1 baudrate 9600,datalen 8bit, parity none	

Application Example

BG-UM88-150L-KIT
Connection Diagram
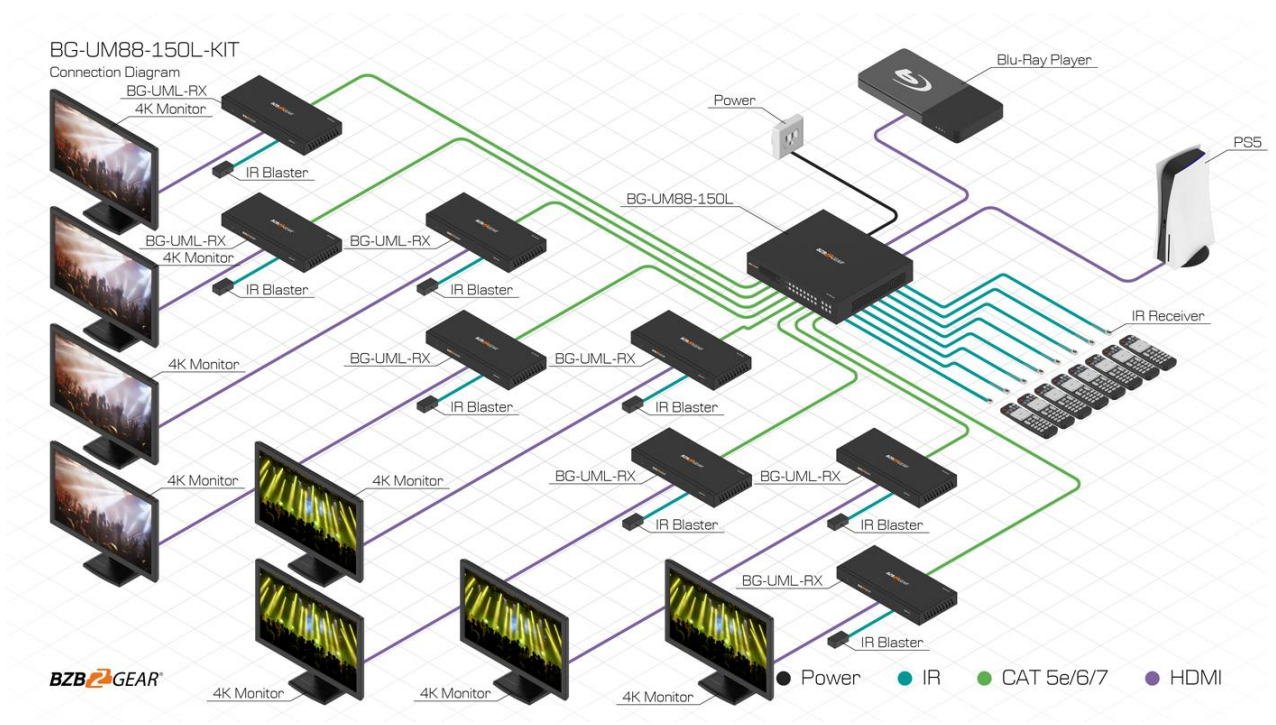
Tech Support

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1.888.499.9906	support@bzbgear.com	bzbgear.com

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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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