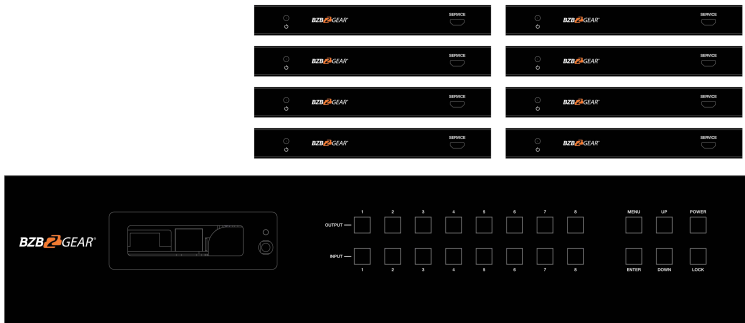




BG-UM88-150L-KIT

18Gbps 8x8 HDBaseT (150m) Matrix



User Manual

Contact

1.888.499.9906 | support@bzbgear.com | bzbgear.com

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction	1
2. Features.....	1
3. Package Contents.....	2
4. Specifications.....	2
5. Operation Controls and Functions.....	4
5.1. Matrix Panel.....	4
5.2. HDBaseT Receiver Panel.....	6
6. IR Remote	7
7. IR Control System.....	8
8. IR Cable Pin Assignment.....	10
9. EDID Management.....	10
10. Web GUI User Guide.....	12
11. RS-232 Control Command.....	19
12. Application Example.....	24
13. Tech Support.....	25
14. Warranty.....	25
15. Mission Statement.....	Back cover

1. Introduction

The BG-UM88-150L-KIT 18Gbps 8x8 HDBaseT(150M) Matrix can connect 8 HDMI sources to 16 displays. The eight HDMI outputs are mirrored to eight HDBaseT outputs that run simultaneously. The HDBaseT output can extend a 4K2K@60Hz 4:4:4 resolution signal up to 492ft /150m via a single Cat 5e/6/7 cable. Audio can be de-embedded via the analog and digital coax ports. Each HDMI output independently supports 4K2K to 1080P downscaling. Featuring IR matrix, the IR signal is one-to-one control at the Matrix end, but the IR signal follows the HDMI video signal at the HDBaseT Receiver end.

This product provides an intuitive OLED menu screen and supports control via front panel buttons, IR remote, RS-232, LAN, and Web GUI.

2. Features

- ☆ HDMI 2.0b, HDCP 2.2 and HDCP 1.x compliant
- ☆ Video resolution up to 4K2K@60Hz (YUV 4:4:4) on all HDMI & HDBaseT ports
- ☆ 8 HDMI inputs, 8 HDMI & HDBaseT mirrored outputs
- ☆ HDMI ports transmit 18Gbps lossless uncompressed video bandwidth
- ☆ 18Gbps lossless compressed HDBaseT signal transmission
- ☆ 4K->1080P Down Scaler on each output port
- ☆ HDR, HDR10, HDR10+, Dolby Vision, HLG are supported
- ☆ HDBaseT output can extend video transmission distance up to 492ft / 150m for 1080P, or 394ft / 120m for 4K2K using 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 matrix
- ☆ Audio de-embedded 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
- ☆ Control options include the front panel buttons, IR remote, RS-232, LAN, and Web GUI

3. Package Contents

- ① 1 x BG-UM88-150L Matrix
- ② 8 x HDBaseT Receivers
- ③ 1 x Matrix IR Remote
- ④ 1 x 100~240V AC 50/60Hz Power cable
- ⑤ 1 x RS-232 serial cable (1.5 meters, male to female head)
- ⑥ 8 x 3-pin Phoenix Connectors & 8 x 5-pin Phoenix Connectors
- ⑦ 9 x IR Blaster cables (1.5 meters)
- ⑧ 9 x IR Receiver cables (1.5 meters)
- ⑨ 18 x Mounting Ears (Matrix and Receiver)
- ⑩ 1x User Manual

4. Specifications

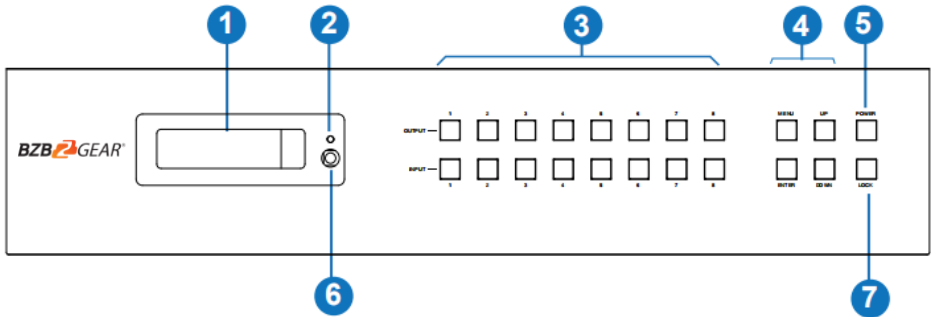
Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.x
Video Bandwidth	18Gbps
Video Resolution	Up to 4K2K@50/60Hz (4:4:4)
Color Space	RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8-bit, 10-bit, 12-bit (1080p@60Hz) 8-bit (4K2K@60Hz YUV4:4:4) 8-bit, 10-bit, 12-bit (4K2K@60Hz YCbCr 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 x HDBaseT port [RJ45] 8 x Coaxial audio [3.5mm Stereo Mini-jack] 8 x 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 x TCP/IP [RJ45] 1 x 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) x 374mm (D) x 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
Premium High-Speed HDMI cables are highly recommended.			

5. Operation Controls and Functions

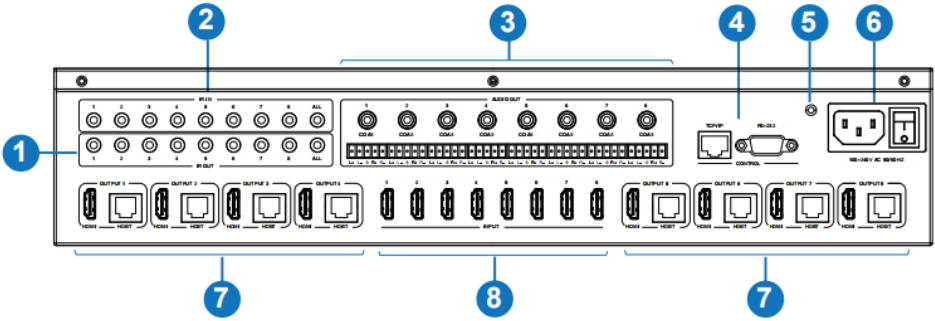
5.1 Matrix Panel

Front Panel

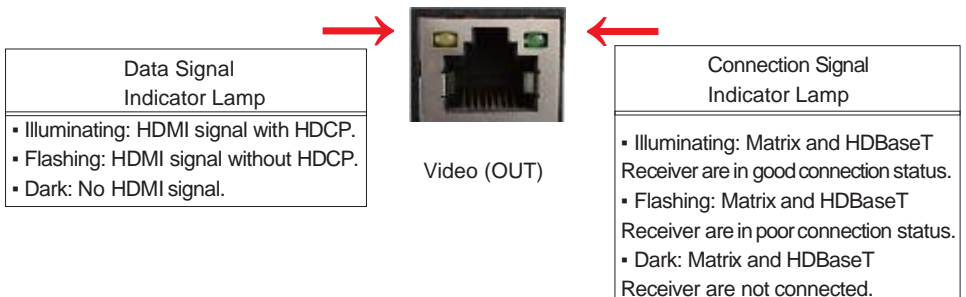


NO.	Name	Function Description
1	OLED screen	Display matrix switching status, input / output port, EDID, Baud rate, IP Address.
2	Power LED	The LED will illuminate green when functioning normally, and red when on standby.
3	OUTPUT / INPUT buttons	Press an output button (1~8) first, and then press an input button (1~8) to select the corresponding input source for the output port.
4	MENU / ENTER / UP / DOWN	<p>① EDID setting: On the OLED display screen, press the “MENU” button to enter “Select EDID” interface. Press the “UP/DOWN” button to select the required EDID and press the “ENTER” button to enter “Copy to Input:” interface. Then press “UP/DOWN” button to select the input port you need to set. Then press the “ENTER” button again to confirm.</p> <p>② Baud rate setting: On the OLED display screen, press the “MENU” button twice to enter “SELECT BAUD” interface, and press “UP/DOWN” button to select the required Baud rate, finally press the “ENTER” button to confirm the setting.</p> <p>③ IP Address Check: On the 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.</p> <p>Pressing the “MENU” button again will return to the initial OLED display status.</p>
5	POWER button	Hold the POWER button for 3 seconds to enter the standby mode. Press the button once to wake up the device.
6	IR Window	IR receiver window only receives the IR remote signal from this product.
7	LOCK button	Press the LOCK button to lock all front panel buttons (except the power button); Press the button again to unlock.

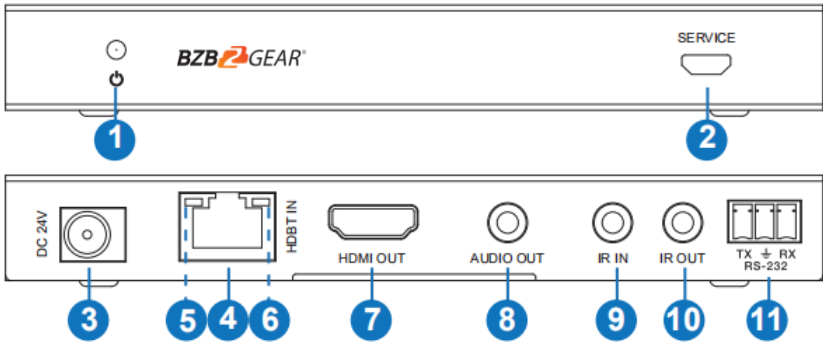
Rear Panel



No.	Name	Function Description
1	IR OUT (1-8/ ALL) ports	Connect the IR blaster cable: The IR emit signal will come from the "IR IN" port of the HDBaseT Receiver.
2	IR IN (1-8/ALL) ports	Connect 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 the power turn on/off.
7	OUTPUT (1-8) ports	HDMI output ports: Connect to an HDMI display device such as a TV or monitor using an HDMI cable. HDBT mirrored output ports: Connect to an HDBaseT receiver using a CAT cable.
8	INPUT (1-8) ports	HDMI input ports: Connect to an HDMI source device such as a media player or PS4 using an HDMI cable.

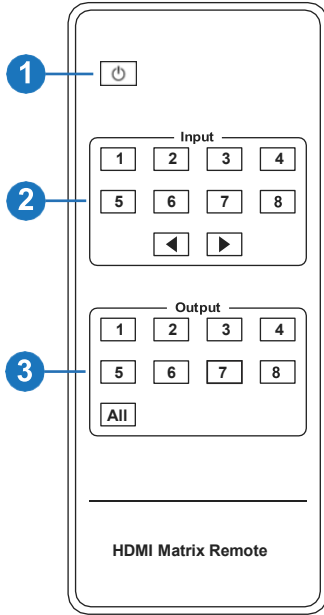


5.2 HDBaseT Receiver Panel



No.	Name	Function Description
1	Power LED	The red LED will illuminate 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 POC function which means that either the transmitter or receiver is powered on by 24V/1A power adapter, and the corresponding unit doesn't require power.
4	HDBT IN	RJ45 connector for connecting the HDBT OUTPUT port of Matrix with a CAT cable.
5	Connection Signal Indicator lamp	<ul style="list-style-type: none"> ▪ Illuminating: Matrix and Receiver has a good connection. ▪ Flashing: Matrix and Receiver has a poor connection. ▪ Dark: Matrix and Receiver are not connected.
6	Data Signal Indicator	<ul style="list-style-type: none"> ▪ Illuminating: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
7	HDMI OUT	HDMI output port: Connect to an HDMI display device such as a TV or monitor using an HDMI cable.
8	AUDIO OUT	Analog audio output port: The audio is extracted from the HDMI signal.
9	IR IN	Connect the IR receiver cable: The IR receive signal will emit to the "IR OUT" port of the Matrix.
10	IR OUT	Connect the IR blaster cable: The IR signal will come 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 commands between the Matrix and HDBaseT Receiver.

6. IR Remote



① **Power on or Standby:** Power on, or set the Matrix 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 the “1” button, the input “1” source will output to all display devices.

Operation instruction: Press the output button first, then press the input button to select the corresponding input source. For example, press Output-X (X = output button from 1 to 8 , including “All” button) Then press Input-Y (Y = input button from 1 to 8).

7. IR Control System

The BG-UM88-150L-KIT is not only a matrix switch but also an extender that supports bi-directional IR control. When the Matrix is connected to HDBaseT Receiver through Cat 5e/6/7 cable, the remote display device (HDBaseT), or input source device (Matrix) may be controlled through the IR signal transmission. Note: The IR signal transmission method is different from the method 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 does not follow the video switching. IR IN ALL port signal of the Matrix will emit to all IR OUT ports of HDBaseT receivers simultaneously. Please see the connection diagram below:

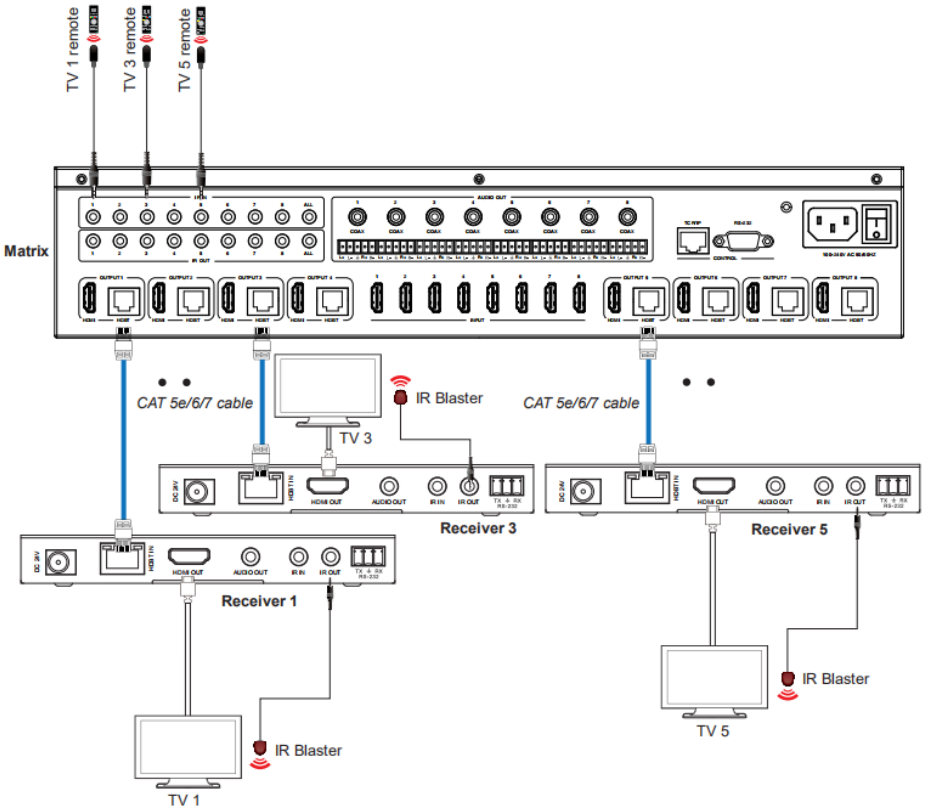


Figure 1: IR connection diagram (Matrix end)

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

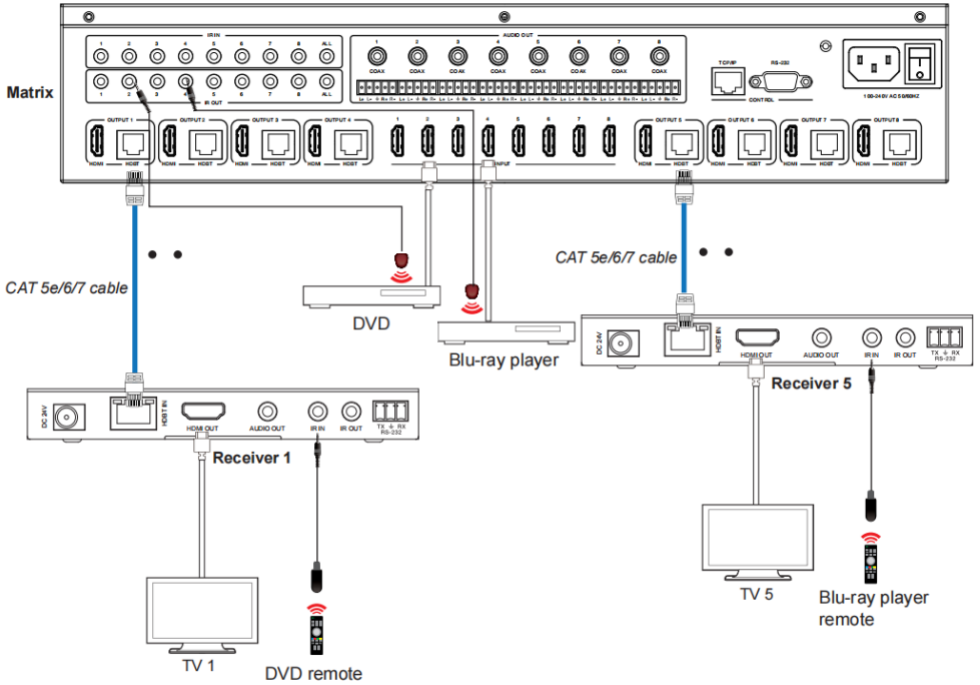
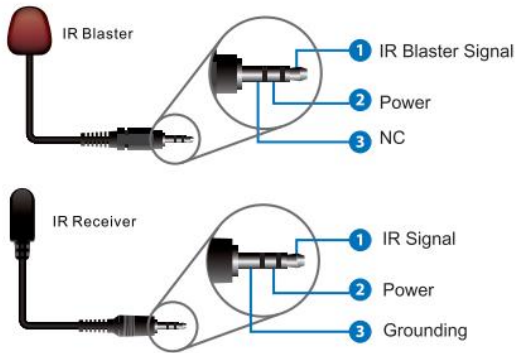


Figure 2: IR connection diagram (HDBaseT Receiver end)

8. IR Cable Pin Assignment



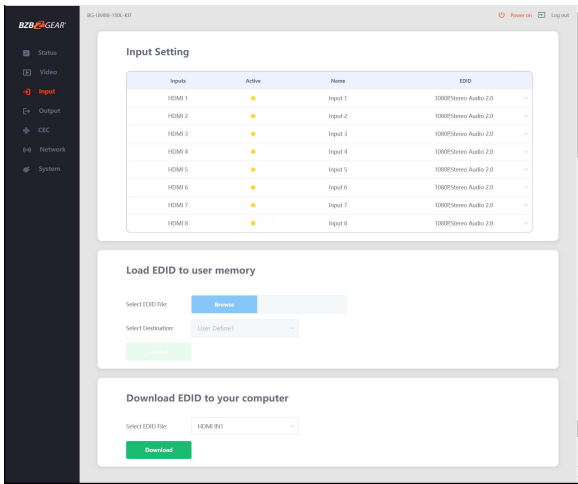
9. EDID Management

The Matrix has 21 factory defined EDID settings, 2 user-defined EDID modes, and 16 copy EDID modes. Select "defined EDID" mode, or "copy EDID" mode to input port through on-panel button, 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. Press the "UP/DOWN" button to select the required EDID, and press the "ENTER" button to enter "Copy to Input:" interface. Press the "UP/DOWN" button to select the specific input port to set, then press "ENTER" button again to confirm this operation.

RS-232 control operation: Connect the Matrix to a PC with a serial cable. Open a Serial Command tool on the PC to send ASCII commands to set EDID. For details, please refer to "EDID Settings" on the ASCII command table under section 11 of this manual.

Web GUI Operation: Please check the EDID management in the "Input page" under section 10 of this manual.



The defined EDID settings file list of the product is shown below:

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

10. WebGUI User Guide

The Matrix may be controlled by using a WebGUI. The operation method is shown below:

Step 1: Find the current IP Address.

The default IP address is 192.168.1.100. The current Matrix IP address may be found in two ways:

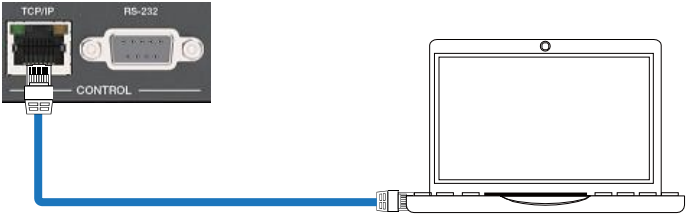
- 1: Find the IP address via panel buttons. On the initial OLED display, press the "MENU" button three times to enter the IP interface and check the current IP address.
- 2: Find the IP address via RS-232 control. Send the ASCII command " r ipconfig!" through a Serial Command tool, the following information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

```
[11:00:55.617]发->◇r ipconfig!  
□  
[11:00:55.710]收←◆IP Mode: DHCP  
IP:192.168.61.103  
Subnet Mask:255.255.255.0  
Gateway:192.168.61.1  
Mac address:6c-df-fb-03-d5-e0  
TCP/IP port=65534  
telnet port=998
```

IP:192.168.61.103 in the figure above is the current Matrix IP address (this IP address is variable, depending on what the specific machine returns).

For the details of RS-232 control, please refer to section 11 of this manual.

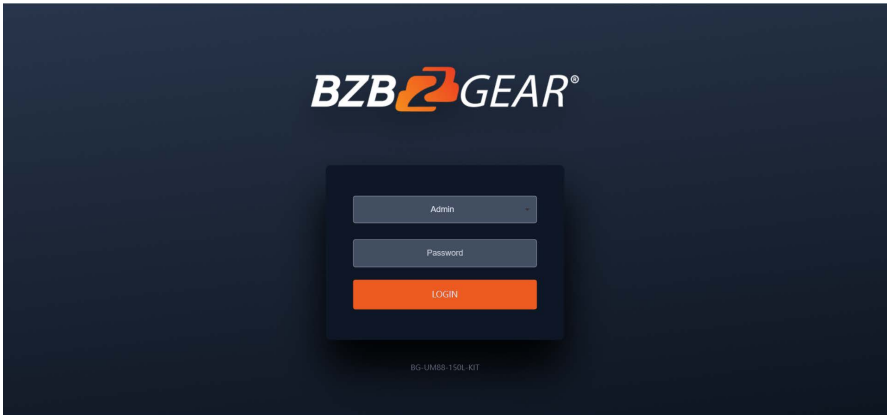
Step 2: Connect the TCP/IP port of the Matrix to a PC using a UTP cable (as shown in the following figure), and set the IP address of the PC to be in the same network segment with the Matrix.



Step 3: Input the current IP address of the Matrix into the PC's browser to enter WebGUI page.



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



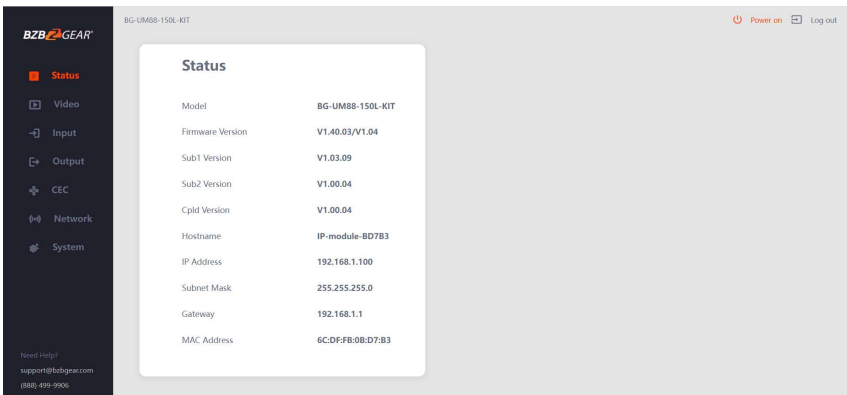
Select the username from the list and enter the password. The default login information:

Username	User	Admin
Password	user	admin

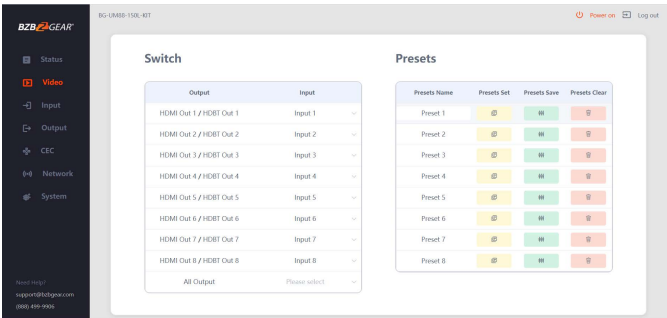
After entering the password, click the “LOGIN” button and the following Status page will display.

■ Status Page

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



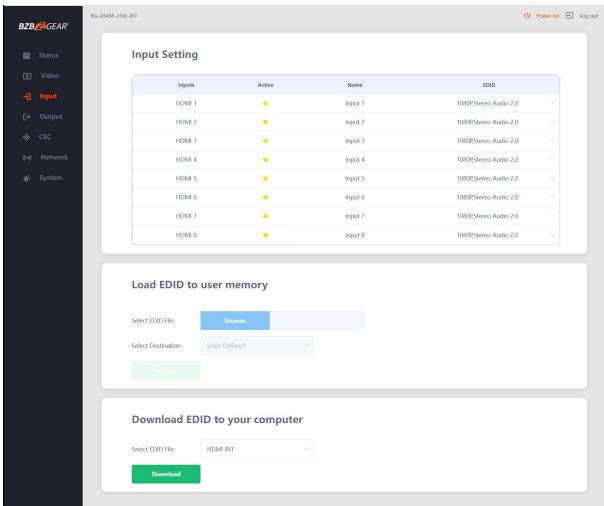
■ Video Page



The following operations may be performed on the Video page:

- ① **Output:** The current OUTPUT port of the device. The input signal source may be selected.
- ② **Input:** Click the drop-down menu to select the input source for the corresponding OUTPUT port.
- ③ **Presets Name:** Name the current scene with maximum length of 12 characters
- ④ **Presets Set:** Restore the settings of the last saved audio-video matrix switching relationship.
- ⑤ **Presets Save:** Save audio-video matrix switching configuration.
- ⑥ **Presets Clear:** Clear the saved audio-video matrix switching configuration.

■ Input Page

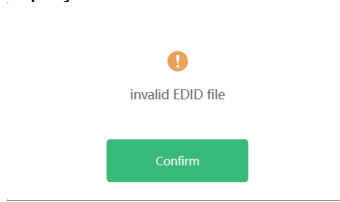


The following operations may be performed on the Input page:

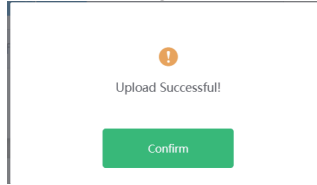
- ① **Inputs:** Input channel of the device.
- ② **Active:** Indicates if the channel is connected to a signal source.
- ③ **Name:** The input channel's name. Modify the name by entering the corresponding name (max length: 12 characters) in the input box
- ④ **EDID:** Set the current channel's EDID. The specific operation is as follows:

Set EDID for the User

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



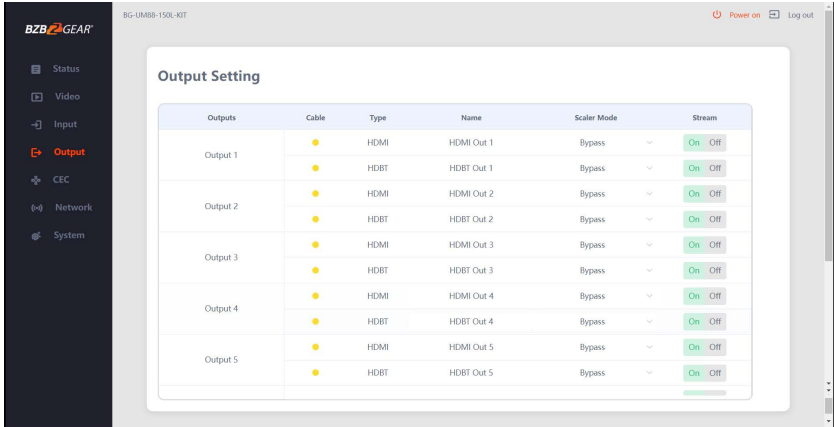
Select the correct file, then check the name of the selected file. Select “User 1” or “User 2”, then click “Upload”. After successful setting, the prompt below to display:



Download the EDID File for the Corresponding Input Channel

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

■ Output Page

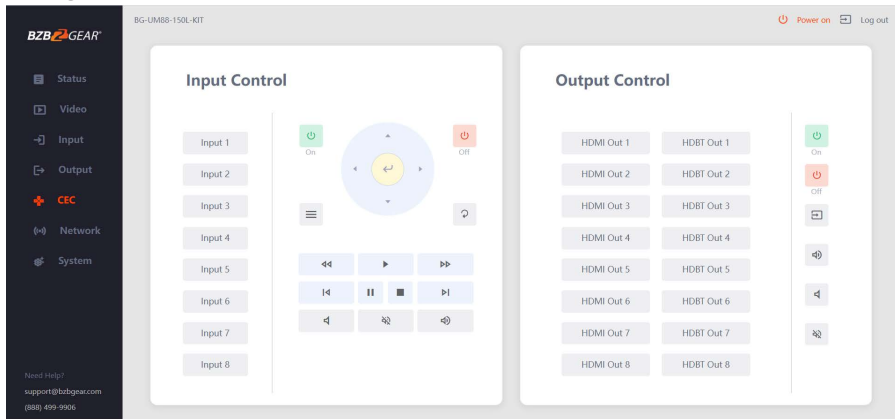
The screenshot shows the BZB GEAR web interface. On the left is a dark sidebar with navigation options: Status, Video, Input, Output (highlighted in orange), CEC, Network, and System. The main content area is titled "Output Setting" and contains a table with columns: Outputs, Cable, Type, Name, Scaler Mode, and Stream. The table lists 5 outputs, each with two rows for Cable (HDMI and HDBT). The Scaler Mode is set to "Bypass" and the Stream is set to "On".

Outputs	Cable	Type	Name	Scaler Mode	Stream
Output 1	●	HDMI	HDMI Out 1	Bypass	On Off
	●	HDBT	HDBT Out 1	Bypass	On Off
Output 2	●	HDMI	HDMI Out 2	Bypass	On Off
	●	HDBT	HDBT Out 2	Bypass	On Off
Output 3	●	HDMI	HDMI Out 3	Bypass	On Off
	●	HDBT	HDBT Out 3	Bypass	On Off
Output 4	●	HDMI	HDMI Out 4	Bypass	On Off
	●	HDBT	HDBT Out 4	Bypass	On Off
Output 5	●	HDMI	HDMI Out 5	Bypass	On Off
	●	HDBT	HDBT Out 5	Bypass	On Off

The following operations may be performed on the Output page:

- ① **Outputs:** Output channel of the device.
- ② **Name:** The current output channel's name. Modify the name by entering the corresponding name (max length: 12 characters) in the input box
- ③ **Type:** The current output channel's type (HDMI or HDBT).
- ④ **Cable:** 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 current output resolution mode.
- ⑥ **Stream:** Turn on/off the output stream.

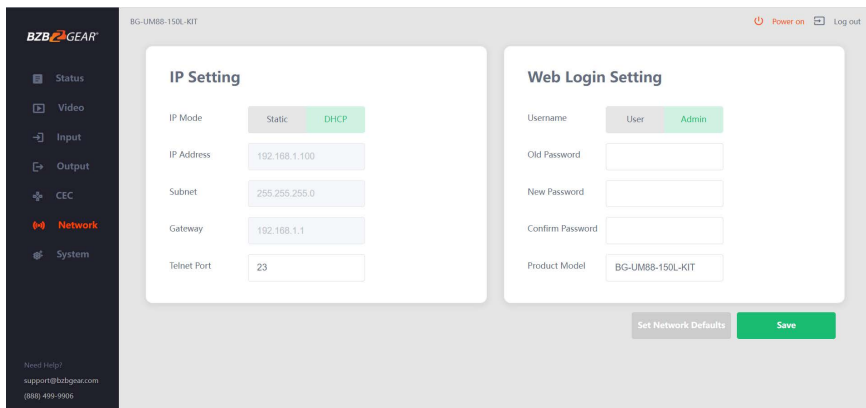
■ CEC Page



Perform the CEC management on this page:

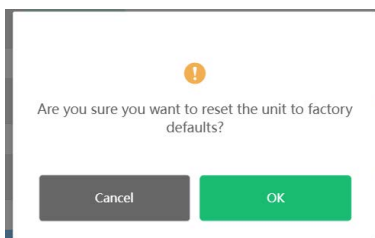
- ① **Input Control:** Control the operation of each input source by pressing the icons on the page. Multiple inputs may be controlled simultaneously.
- ② **Output Control:** Control the operation of each display, such as power on/off, volume +/-, and active source switching. Multiple outputs may be controlled simultaneously.

■ Network Page

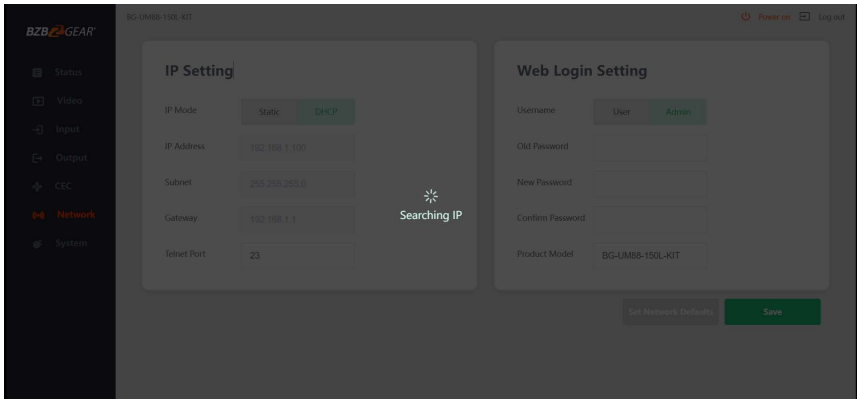


Set the Default Network

Select “Set Network Defaults” button and the prompt below will display:



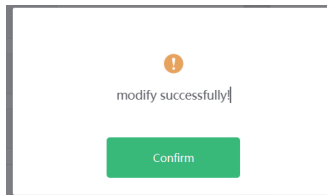
Click “OK” to search the IP Address again, as shown in the figure below:



After searching has completed, it will switch to the login page, and the default network setting has been completed.

Modify User Password

Click the “User” button, enter the correct Old Password, New Password, and Confirm Password, then click “Save”. After successfully modifying, the following prompt will display:



Note: Rules for changing passwords:

- (1) The password cannot be empty.
- (2) New password cannot be the same as old password.
- (3) New password and confirm password must be the same.

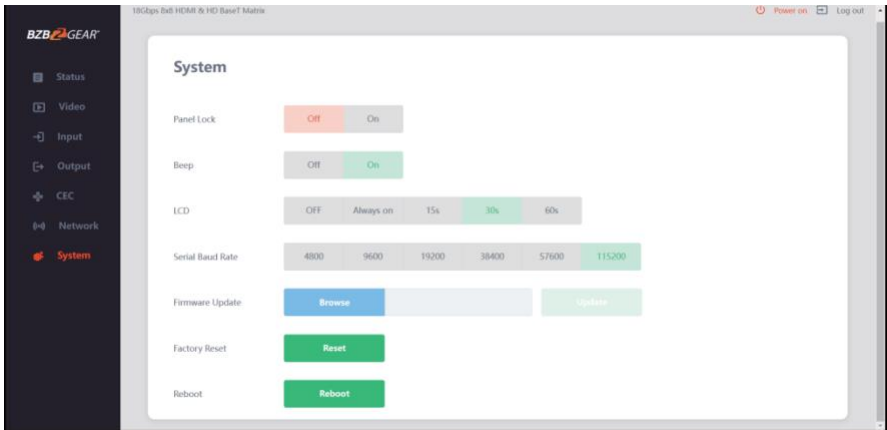
Modify Network Setting

Modify the Mode/IP Address/Gateway/Subnet Mask/Telnet Port as required, click “Save” to save the settings.

After modification, if the Mode is “Static”, it 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.



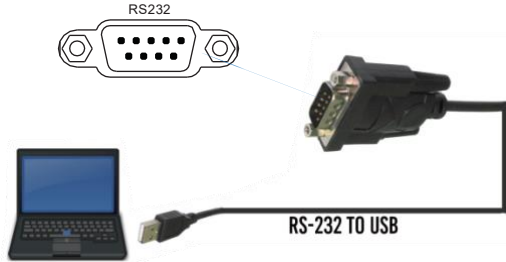
■ System Page



- 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 beep.
 - ③ **LCD:** Turn the LCD on/off, and set the turn-on 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, then click “Update” to complete firmware update.
 - ⑥ **Factory Reset:** Reset the device to factory defaults by clicking “Reset”.
 - ⑦ **Reboot:** Reboot the machine by clicking “Reboot”.
- Note:** After reset/reboot, it will switch to the login page.

11. RS-232 Control Command

The BG-UM88-150L-KIT supports RS-232 control. A serial cable with RS-232 male head and DB9 transfer USB male head is required. 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 to send ASCII command to control the Matrix.

The ASCII command list is given 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	

Command Code	Function Description	Example	Feedback	Default Setting
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... 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	

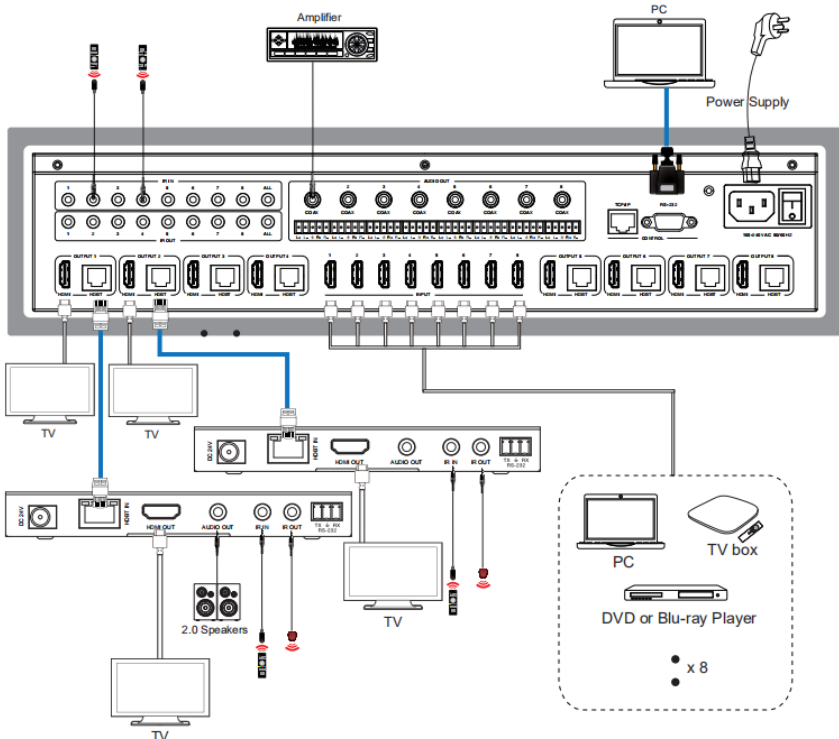
Command Code	Function Description	Example	Feedback	Default Setting
s hdbt y stream z!	Set hdbt output y stream on/off, y=0~8(0=all) z=0~1(0:disable,1:enable)	s hdbt 1 stream 1! s hdbt 0 stream 1!	enable hdbt output 1 stream disable hdbt output 1 stream enable hdbt all outputs stream disable hdbt all 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
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	

Command Code	Function Description	Example	Feedback	Default Setting
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!	input 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	
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	

Command Code	Function Description	Example	Feedback	Default Setting
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	
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	

Command Code	Function Description	Example	Feedback	Default Setting
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,dataalen 8bit, parity none	

12. Application Example



13. Tech Support

Before contacting tech support, we may have answered your question already! Visit our BZBGear support page ([bzbgear.com/support](https://www.bzbgear.com/support)) for valuable information on our products.

Here you will find our Knowledge Base ([bzbgear.com/knowledge-base](https://www.bzbgear.com/knowledge-base)) consisting of tutorials, quick start guides, and step-by-step troubleshooting instructions. Also visit our YouTube channel BZB TV ([youtube.com/c/BZBTVchannel](https://www.youtube.com/c/BZBTVchannel)) for help setting up, connecting, and other how-to videos regarding our products.

If you still need help, please call 1.888.499.9906, email support@bzbgear.com, or chat at [bzbgear.com](https://www.bzbgear.com).

14. Warranty

BZBGear Pro AV products and Cameras come with a three-year warranty. An extended two-year warranty is available for our Cameras upon registration for a total of five years.

For an extended two-year warranty on our Cameras, follow these steps:

1. Register your Camera within 90 days of purchase by visiting [bzbgear.com/warranty](https://www.bzbgear.com/warranty).
2. Complete the registration form. Provide all necessary proof of purchase details, including serial number and a copy of your sales receipt.

For complete warranty information, please visit [bzbgear.com/warranty](https://www.bzbgear.com/warranty) or scan the QR code.



Mission Statement

BZBGear manifests from the competitive nature of the audiovisual and live streaming industry to innovate while keeping the customer in mind. AV solutions can cost a pretty penny, and new technology only adds to it. We believe everyone deserves to see, hear, and feel the advancements made in today's AV world without having to break the bank. BZBGear is your answer for applications requiring the latest pro AV and live streaming solutions.

You'll notice comparably lower prices with BZBGear while the performance and quality are on par with the top brands in the industry. Our team offers system design consultation and expert tech support seven days a week for all BZBGear products. Our unparalleled support is our way of showing we care for every one of our customers. Whether you're an integrator, home theater enthusiast, or a do-it-yourselfer, BZBGear offers solutions allowing you to focus on your project and not your budget.