

BG-8K-HS41A

48Gbps 4x1 Switcher with ARC/eARC Function

User Manual







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Statement

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

Safety Precaution

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

Surge protection device recommended

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



Introduction

The BG-8K-HS41A 48Gbps 4x1 Switcher allows you to switch between four HDMI source signals on a single HDMI display, supporting video resolutions up to 8K@60Hz 4:2:0. It features advanced EDID management, CEC control, ARC/eARC, and audio de-embedding with output options through optical and analog audio ports. Additionally, firmware upgrades are possible via the USB Type-C port.

This versatile product is ideal for use in demonstrations, video conferences, multimedia teaching, and other scenarios that require large-screen presentations.

Features

- HDCP 2.3 compliant
- Support 48Gbps FRL and 18Gbps TMDS video bandwidth
- Video resolution is up to 8K@60Hz 4:2:0 12bit, 8K@30Hz 4:4:4 12bit, 4K@120Hz 4:4:4 12bit, as specified in HDMI 2.1
- HDMI 2.1 protocol: VRR, ALLM, QMS, QFT, and SBTM are supported
- Support HDR, HDR10, HDR10+, Dolby Vision, HLG pass-through
- Support HDMI audio formats: LPCM 7.1CH, Dolby TrueHD, Atmos and DTS-HD Master, DTS:X Audio pass-through
- Features 4 x HDMI inputs routed to 1 x HDMI output
- Support HDMI input and TV eARC audio de-embedded to SPDIF and L/R audio output
- Support HDMI input and TV eARC audio to output to SONOS ARC & Beam or any eARC soundbar
- Support CEC control from the TV at the output to the source at the input
- Support CEC volume control from TV to any eARC sound system
- Support advanced EDID management

Packing List

- 1 x 48Gbps 4x1 Switcher
- 1 x 5V/1A Multinational Power Supply
- 1 x IR Remote
- 1 x User Manual



Specifications

Technical	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	48Gbps FRL and 18Gbps TMDS
Audio Latency	No Latency
Video Latency	No Latency
Video Resolution	Up to 8K@60Hz 4:2:0 12bit, 8K@30Hz 4:4:4 12bit, 4K@120Hz 4:4:4 12bit
Color Depth	8/10/12bit
Color Space	RGB_4:4:4, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Audio Formats	<p>HDMI Input/Output: LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DTS:X, DSD</p> <p>eARC Audio Out: LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DTS:X, DSD</p> <p>Audio De-embedded Output: Optical: LPCM 2.0CH/Dolby/DTS 5.1CH Analog: LPCM 2.0CH</p>
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Input	4 × HDMI IN [Type A, 19-pin female]
Output	1 × HDMI OUT [Type A, 19-pin female] 1 × OPTICAL [S/PDIF] 1 × L/R [3.5mm Stereo Mini-jack]
Control	1 × SERVICE [USB Type C, Update port]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions (WxDxH)	6.9in x 2.7in x 0.71in [176mm x 68mm x 18mm]
Weight	0.69 lbs [315g]
Power Supply	Input: AC100-240V 50/60Hz, Output: DC 5V/1A (US/EU standards, CE/FCC/UL certified)
Power Consumption	2.5W (Max)
Operation 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)

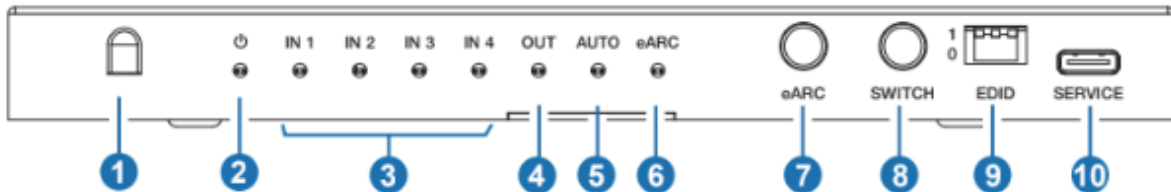


Recommended HDMI Cable				
Video Resolution	8K	4K60	4K24	1080P
HDMI Cable Length (HDMI in / out)	2m/6.6ft (Ultra HDMI 2.1)	8m/26f	12m/39ft	15m/49ft
The use of "Premium High Speed HDMI" cables is highly recommended.				



Operation Controls and Functions

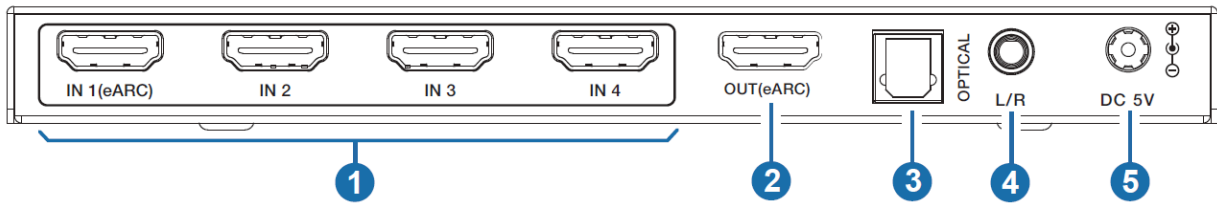
Front Panel



No.	Name	Function Description
1	IR Window	IR input signal receiving window.
2	Power LED	The red LED is on when the device is powered on.
3	IN LED (1~4)	When the HDMI IN 1/2/3/4 port is selected as the signal source input channel, the corresponding green LED will be on.
4	OUT LED	When the HDMI OUT port connects to a display device, the green LED will be on.
5	AUTO LED	When the auto-switching function (switch to the corresponding signal input channel when the signal source is connected.) is turned on, the green AUTO LED will be on.
6	eARC LED	<ul style="list-style-type: none"> ▪ On: The ARC/eARC function is turned on. CEC communication and ARC/eARC are working properly. ▪ Flashing: The ARC/eARC function is turned on. CEC communication and ARC/eARC are not working properly. ▪ Off: The ARC/eARC function is turned off.
7	eARC switch	Press the button to turn on/off ARC/eARC function.
8	SWITCH button	Used to select a signal source for the OUT port. <ul style="list-style-type: none"> ▪ Short press this button to circularly switch the HDMI input signal to the OUT port. ▪ Long press for 3 seconds to turn on/off the auto-switching function.
9	EDID DIP switch	Use the DIP switch to set EDID. 111 - Copy OUT port sink EDID (as default) 110- Video EDID copy sink EDID, Audio EDID Copy soundbar EDID 101- FRL 12G_8K_HDR, Audio 2ch PCM 100- FRL 12G_8K_HDR, Audio 5.1ch PCM/DTS/DOLBY 011- FRL 12G_8K_HDR, Audio 7.1ch PCM/DTS/DOLBY/HD 010- FRL 10G_8K_HDR, Audio 2ch PCM 001- FRL 10G_8K_HDR, Audio 5.1ch PCM/DTS/DOLBY 000- FRL 10G_8K_HDR, Audio 7.1ch PCM/DTS/DOLBY/HD
10	SERVICE	Firmware update and debug port.



Rear Panel



No.	Name	Function Description
1	IN 1/2/3/4	<p>HDMI input ports, connected to HDMI source devices such as DVD, PS4, or Set-top Box with HDMI cable.</p> <p>Note: When the ARC/eARC function is turned off, connect the “IN 1(eARC)” port to the HDMI source device to work as a signal input port; When the ARC/eARC function is turned on, connect the “IN 1(eARC)” port to a Soundbar or amplifier with ARC/eARC function to output the audio signal from other HDMI source, or the audio returned from the TV connected to the “OUT(eARC)” port.</p> <p>Please refer to “7. Application Example” for details.</p>
2	OUT (eARC)	HDMI output port, connect to HDMI display device such as HDTV or Projector with HDMI cable.
3	OPTICAL	Optical fiber audio output port.
4	L/R	Analog audio output port.
5	DC 5V	DC 5V/1A power input port.



IR Remote

**eARC:**

Press this button to turn on/off ARC/eARC function.

Auto:

Press this button to turn on/off the auto switching function.

1/2/3/4:

Press 1/2/3/4 button to select HDMI signal source IN 1/2/3/4 to output.

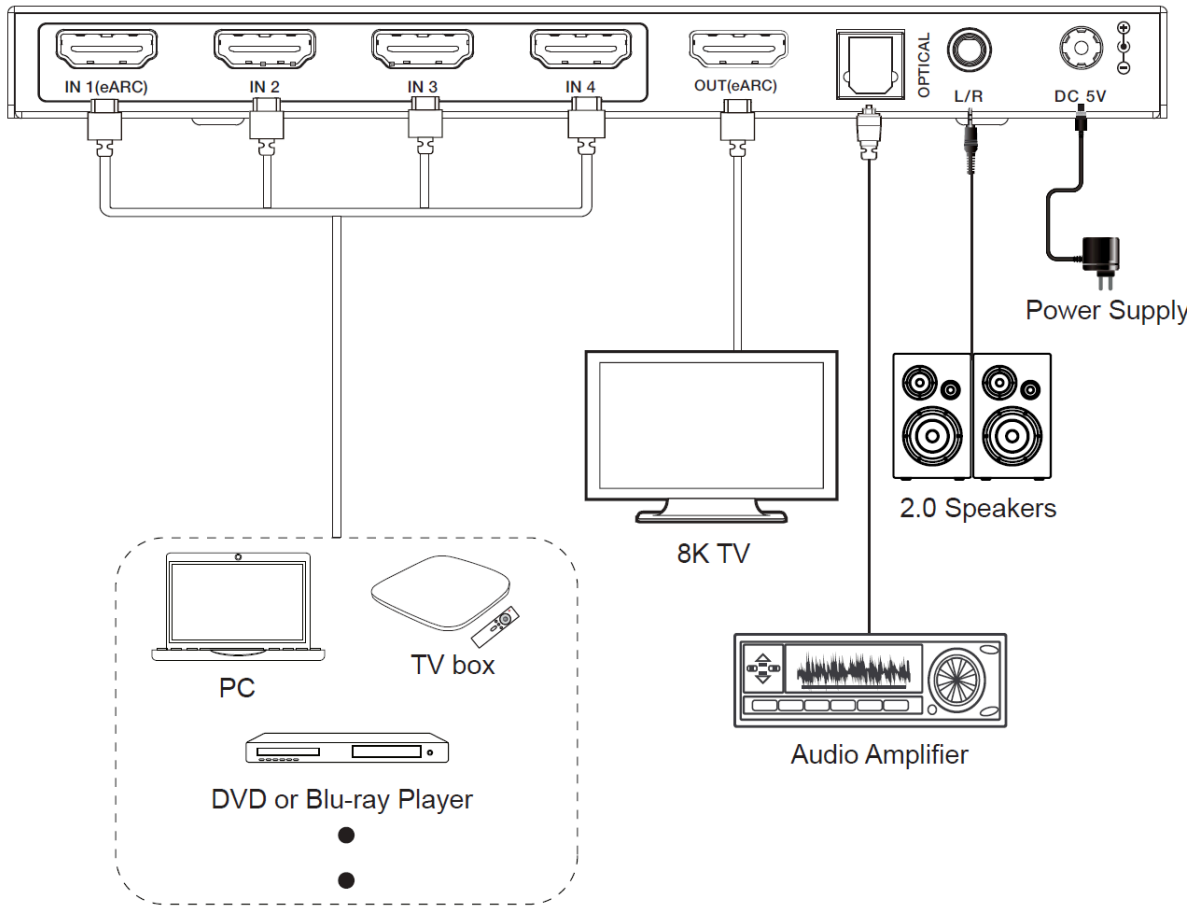
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Press this button to select the next HDMI signal source circularly.



Connection Diagram (Example 1)

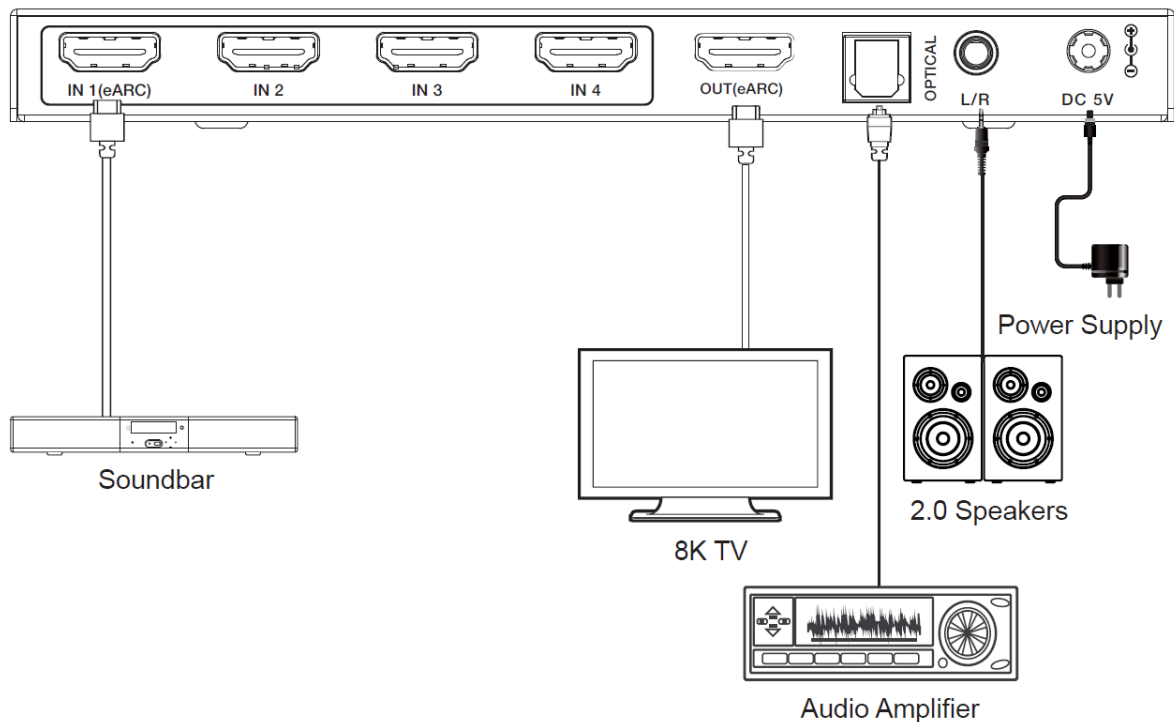
When the ARC/eARC function is turned off, the connection diagram is as follows. In this situation, the optical audio or L/R audio is from the selected input channel.





Connection Diagram (Example 2)

When the ARC/eARC function is enabled, select input port 1 by pressing the "SWITCH" button on the front panel or the "1" button on the IR remote. Then, connect the "IN 1 (eARC)" port to a soundbar to output the audio signal returned from the "OUT (eARC)" port, as shown in the figure below. For example, when the user watches a TV app, the switcher will pass through the TV eARC/ARC audio to the soundbar. At this point, the optical audio or L/R audio comes from the returned audio of the 8K TV connected to the OUT (eARC) port.



Note:

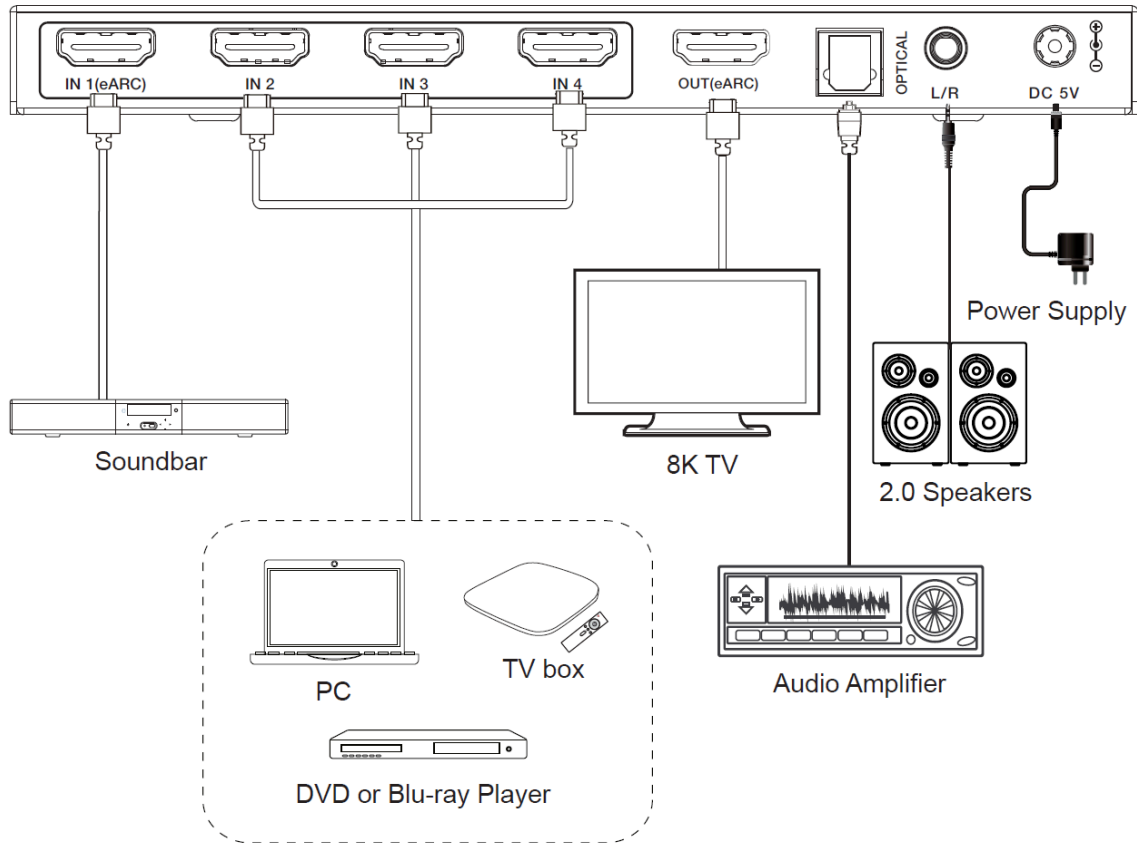
If the 8K TV supports the ARC/eARC function, the Soundbar will receive the audio signal from the TV and emit the sound. If the TV does not support ARC/eARC, the Soundbar will not emit sound.

When the IN 1 channel is selected as the input source, it will be locked. This means that other input channels will not be automatically identified, even if Auto Switching is enabled. For example, if a source device is connected to the IN 3 channel, it will not be automatically used as the signal source because the IN 1 channel is locked.



Connection Diagram (Example 3)

When the ARC/eARC function is enabled, select input port 2, 3, or 4 by pressing the “SWITCH” button on the front panel or using the buttons on the IR remote. If you connect the “IN 1(eARC)” port to a soundbar, it will output the audio signal from the selected input channel. At this time, the optical audio or L/R audio will also come from the selected input channel.



Note: In this situation, the soundbar will not output audio from the 8K TV connected to the OUT port, regardless of whether the 8K TV supports ARC/eARC.



Troubleshooting

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



Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGEAR's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone	Email	Live Chat
1.888.499.9906	support@bzbgear.com	bzbgear.com

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 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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