



**BK-402A**

**40Gbps 4x2 HDMI Matrix  
with Audio Extraction**

**USER MANUAL**

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# Table of Contents

Introduction	04
Features	04
Package Contents	05
Specifications	06
Operation Controls and Functions	08
IR Remote	10
Application Example	11
FAQs & Troubleshooting	13

## **Thank you for purchasing this product**

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 service life of your equipment.

Please Activate your warranty by registering our product through the link below - <https://www.orei.com/register>

## **Technical Support**

### ***Need Help?***

Our experienced Technical Support Team is here for you to answer your questions, give technical advice or help troubleshoot your project to get you installed on time and on budget. Call, email or chat with us now.

### **OREI Live Technical Support Hours**

US team (US/Canada/Mexico): Monday-Friday, 9 a.m. - 6 p.m. Central Time

**Support Email** - [info@orei.com](mailto:info@orei.com) | **Support Number** - 877-290-5530

Or

### **Chat Live on [www.orei.com](http://www.orei.com)**

Send us an instant message now. Our Technical Support Team will respond momentarily. Available during live support hours.

# Introduction

The BK-402A 4x2 Matrix is the perfect AV distribution solution to take multiple inputs to 2 outputs. The device features 4 HDMI Inputs and 2 HDMI Outputs. It can take 4 media sources and allow you to display them on 2 outputs at the same time with the option to have different media on different outputs at resolutions up to 8K@60Hz. The device features advanced EDID management through the dip switches on the front. Features Optical and Analog 3.5mm ports for audio extraction. Supports eARC between Input 1 and Output 1. Among other features, the device can also downscale from 8K to 4K and 8K/4K to 2K. The BK-402A Matrix is the best device for various applications in home theatre, educational, or professional setups.



# Features & Package Contents

## Features

1. HDMI 2.1 & HDCP 2.3 Compliant
2. 40Gbps Video Bandwidth
3. Video resolutions up to 8K@60Hz 4:2:0 10bit
4. Also supports 8K@30Hz 4:4:4 10bit, 4K@120Hz 4:4:4 10bit
5. VRR(Variable Refresh Rate), ALLM(Auto Low Latency Mode), FVA(Fast VActive) Support
6. eARC support between Input 1 and Output 1
7. Audio Extraction through Optical and Analog 3.5mm ports
8. 8K to 4K and 8K/4K to 2K Downscale support

## Package Contents

1.	BK-402A	1 pcs
2.	IR Remote	1 pcs
3.	5V/2A Multinational Power Supply	1 pcs
4.	User Manual	1 pcs

# Specifications

Technical	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	40Gbps
Video Resolution	Up to 8K@60Hz 4:2:0 10bit, 8K@30Hz 4:4:4 10bit, 4K@120Hz 4:4:4 10bit
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	<b>HDMI input/output:</b> LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD <b>Audio de-embedding output:</b> Optical: LPCM/Dolby/DTS 5.1CH Analog: LPCM 2.0CH
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Connections	
Input	4 × HDMI IN [Type A, 19-pin female]
Output	2 × HDMI OUT [Type A, 19-pin female] 1 × OPTICAL [S/PDIF] 1 × L/R [3.5mm Stereo Mini-jack]
Control	1 × SERVICE [Micro USB, Update port]

# Specifications

## Mechanical

Housing	Metal Enclosure
Color	Black
Dimensions	200mm [L] × 85mm [W] × 21mm [H]
Weight	411g / 14.5oz
Power Supply	Input: AC 100-240V 50/60Hz, Output: DC 5V/2A (US/EU standards, CE/FCC/UL certified)
Power Consumption	2W (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)

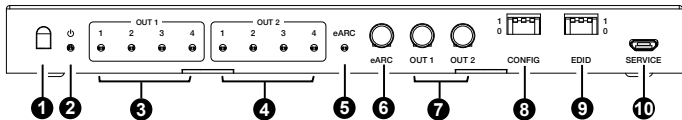
## Recommended HDMI Cable

<b>Video Resolution</b>	8K60	4K60	4K24	1080P
<b>HDMI Cable Type</b>	Ultra HDMI 2.1	HDMI 2.0	HDMI 1.4	HDMI 1.4
<b>HDMI Cable Length (HDMI IN/OUT)</b>	3m/10ft	8m/26ft	12m/39ft	15m/49ft

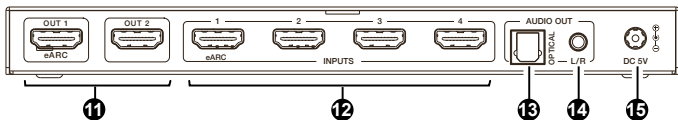
The use of "Premium High Speed HDMI" cable is highly recommended.

# Operation Controls and Functions

## Front Panel



## Rear Panel



No.	Name	Function Description
1.	IR Window	IR input signal receiving window.
2.	POWER LED	The power LED lights up green when the device is working, and red when the device is in standby mode.
3.	OUT 1 LED (1-4)	When the INPUTS 1/2/3/4 port is selected as the signal source input channel for OUT 1 port, the corresponding green LED 1/2/3/4 will light up.
4.	OUT 2 LED (1-4)	When the INPUTS 1/2/3/4 port is selected as the signal source input channel for OUT 2 port, the corresponding green LED 1/2/3/4 will light up.
5.	eARC LED	The eARC LED will light up when you turn on the eARC function.
6.	eARC button	Press the button to turn on/off the eARC function.



# Operation Controls and Functions

No.	Name	Function Description
7.	OUT 1-2 button	Used to select signal source for OUT 1/2 port. Pressing the button OUT 1/2 will allow you to cycle through all inputs on that specific output.
8.	CONFIG DIP switch	Use the DIP switch to set working mode (x means 1 or 0). 1xx- Matrix mode 0xx- Splitter mode x11- OUT 2 pass-through mode x10- OUT 2 scaler mode (8K->4K) x01- OUT 2 scaler mode (8K/4K->1080P) x00- OUT 2 pass-through mode
9.	EDID DIP switch	Use the DIP switch to set EDID. 111- Copy OUT 1 port sink EDID (as factory default) 110- HDMI 1080p@60Hz, Audio 2ch PCM 101- HDMI 4K@60Hz 4:4:4, Audio 2ch PCM 100- HDMI 4K@60Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY 011- HDMI 4K@60Hz 4:4:4, Audio 7.1ch PCM/DTS/DOLBY/HD 010- HDMI 8K@60Hz 4:2:0+8K@30Hz 4:4:4, Audio 2ch PCM 001- HDMI 8K@60Hz 4:2:0+8K@30Hz 4:4:4, Audio 5.1ch PCM/DTS/DOLBY 000- HDMI 8K@60Hz 4:2:0+8K@30Hz 4:4:4, Audio 7.1ch PCM/DTS/DOLBY/HD
10.	SERVICE	Firmware update and debug port.
11.	OUT (1-2) port	HDMI Output port to connect a display device such as a TV or Monitor Note: When the eARC function is turned on, you can connect the "OUT 1 (eARC)" port to an HDMI TV with eARC function.

# Operation Controls and Functions

No.	Name	Function Description
12.	INPUTS (1~4) port	HDMI Input port to connect a media source such as a DVD player, set-top box, etc. <b>Note:</b> When the eARC function is turned off, the INPUT 1 will act as a normal HDMI Input port; When the eARC function is turned on, you can connect an eARC Soundbar to INPUT 1 to receive audio extracted from OUT 1.
13.	OPTICAL	Optical fiber audio output port. <b>Note:</b> When the eARC function is turned on, this port is muted.
14.	L/R	Analog audio output port. <b>Note:</b> When the eARC function is turned on, this port is muted.
15.	DC 5V	DC 5V/2A Power input port.

## IR Remote



Power on the device or set it to standby mode.

### eARC:

Press this button to turn on/off eARC function. When it is turned on, the eARC LED on the front panel will be on.

### OUT A/OUT B 1/2/3/4:

Press 1/2/3/4 directly to select the relevant input source for OUT 1/2 to display.

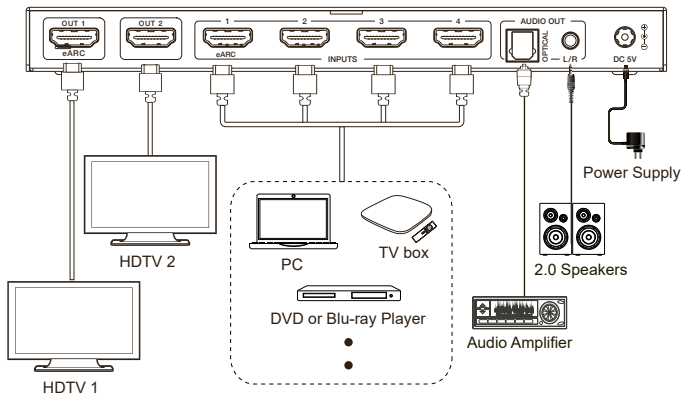


Press arrow buttons to select the previous or next input

# Application Example

## Situation 1:

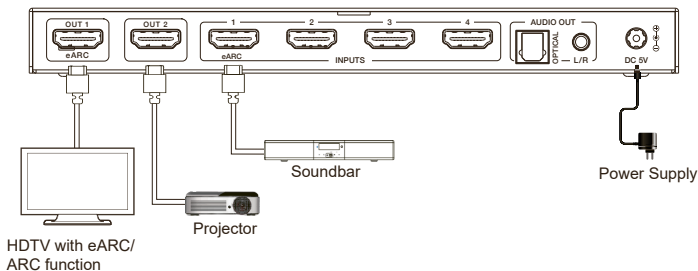
When the eARC function is turned off, the connection is as follows.



# Application Example

## Situation 2:

When the eARC function is turned on, connect the "INPUT 1 (eARC)" port to a Soundbar to output the audio signal returned from the "OUT 1 (eARC)" port, the INPUT 1 LED for OUT 1 lights up, the connection is as follows.



## Note:

1. If the TV supports eARC/ARC function, the Soundbar will receive the audio signal returned from the TV, and then emit the sound; otherwise it will not emit sound.
2. If the TV supports eARC/ARC function, but the Soundbar only supports ARC function, please turn off the eARC from the TV settings.



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## 1. What is the maximum length of cables I can use?

We recommend using high-quality HDMI cables under 30 feet.

## 2. Can I connect 2 displays and 2 computers to the Matrix to extend my displays?

Unfortunately, that is not possible with this Matrix

## 3. Not getting video output

- > Check if the LEDs on the front for the corresponding output are lighting up
- > Check if all HDMI cables are intact
- > Try changing the HDMI cables

## 4. Can I connect an eARC Soundbar for Audio?

The BK-402A features eARC function between Input and Output 1 for audio extraction. You can connect an ARC/eARC Soundbar to Input 1 and an ARC/eARC TV to Output 1.

## 5. Can I use a capture card to record a stream from a gaming console?

You cannot use a capture card due to HDCP encryption on the outputs.

## 6. Can we leave the unit continuously running?

Yes, you can leave the unit always running. However, it is recommended to turn it off when not in use.



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