ELEMENT
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HDMI™ MATRIX

ELE9090

4x4 HDMI Matrix Switch

INSTALLATION MANUAL

Full HD
1080

Blu-ray Disc™

RoHS
Compliance

INTRODUCTION

Dear customer,

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.

Our series of HDMI converters, switches, extenders, matrixes, and splitters are designed to make using your A/V device more convenient, more comfortable, more productive, and more cost-efficient.

The **ELE9090 4x4 HDMI Matrix Switch** allows any source (Blue-Ray player, HD DVD player, satellite receiver, game system, etc.) to be shown on the any of the four displays simultaneously, no matter if the source is HDCP or not. Extra infrared receiver extension, IR emitter, RS232 port are supplied for remote control.

The ELE9090 has equalization and amplification to ensure HDMI signal's transmission through long cable without quality loss.

The ELE909 offers solutions for digital entertainment center, HDTV retail and show site, HDTV, STB, DVD and projector factory, noise, space and security concerns, data center control, information distribution, conference room presentation, school and corporate training environments.

Features

➢ Allows up to four HDMI audio/video devices to be independently switched to four HDMI monitors, HDTVs, or projectors.

➢ The four outputs could show the same or different source simultaneously no matter the source is HDCP or not.

➢ The four outputs are all include one HDMI-A connecter and one dual RJ-45 connecter. They can output simultaneously.

➢ Support high definition resolutions 1080p, 1080i, 720p and other standard video formats.

➢ Each port supports HDMI or DVI inputs.

➢ Extra infrared receiver extension.

➢ Five switching modes: panel buttons, local IR, IR call back from remote rooms, RS232.

➢ IR emitter for IR call back function to control the HDMI source from remote rooms.

➢ HDCP compliant.

➢ HDMI 1.3 version.

Package Contents

- ➢ (1) Main unit
- ➢ (1) 12V DC Power Supply
- ➢ (1) Remote
- ➢ (1) 38KHz IR extension cable (IR RX)
- ➢ (4) IR emitter cable (IR TX)
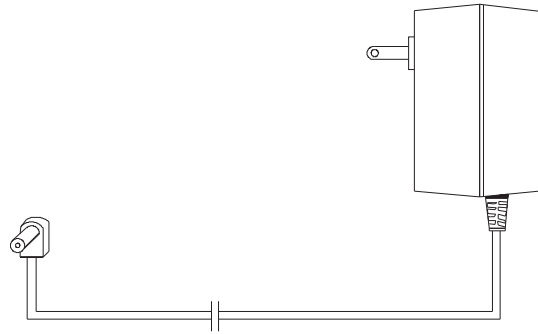
Specifications

- ➢ Operating Temperature Range: -5 to +35°C (-41 to +95 °F)

- ➢ Operating Humidity Range: 5 to 90 % RH (no condensation)

- ➢ Input Video Signal: 0.5-1.0 volts p-p

- ➢ Input DDC Signal: 5 volts p-p (TTL)

- ➢ Signaling Rate: 2.25Gbit/s

- ➢ Video Format Supported: DTV/HDTV:1080P/1080i/720P/576P/480P/576i/480i

- ➢ Max Deep Color: 12-bit

- ➢ Audio Format Supported: DTS-HD、Dolby trueHD

- ➢ Output Video: HDMI1.2 and HDMI 1.3

- ➢ Maximum Transmission Distance: <15m (If needed, HDMI extender is optional)

- ➢ UTP cable Transmission Distance: 1080P can be extended to CAT5e 40m or CAT6 50m

- ➢ Lip Sync: The matrix don't cause latency. Bypass the Lip Sync

- ➢ Switching Time: Normally under 5 sec (different TV's will have different switching time)

- ➢ Power Consumption: 12 watts (Max)

- ➢ Dimensions: 14.4" x 4.4" x 1.8"

- ➢ Weight: 4.1 lbs

INSTALLATION

Connections
INSTALLATION

➤ Connect the HDMI input sources (such as HD-DVD, PS3, STB etc) into the ELE9090.

➤ Connect the HDMI outputs (such as HD-LCD, HD-DLP) into the ELE9090. Use the HDMI cable to connect local HDMI devices to the ELE9090. Use UTP cable to connect remote HDMI devices to the ELE9090.

➤ Select the input source you want to show and power it ON.

➤ Connect the power supply into the ELE9090 and turn on the display you want to watch.

➤ Use remote or push the button to choose input source. Extra infrared receiver extension, IR emitter and RS232 port are supplied for remote control.
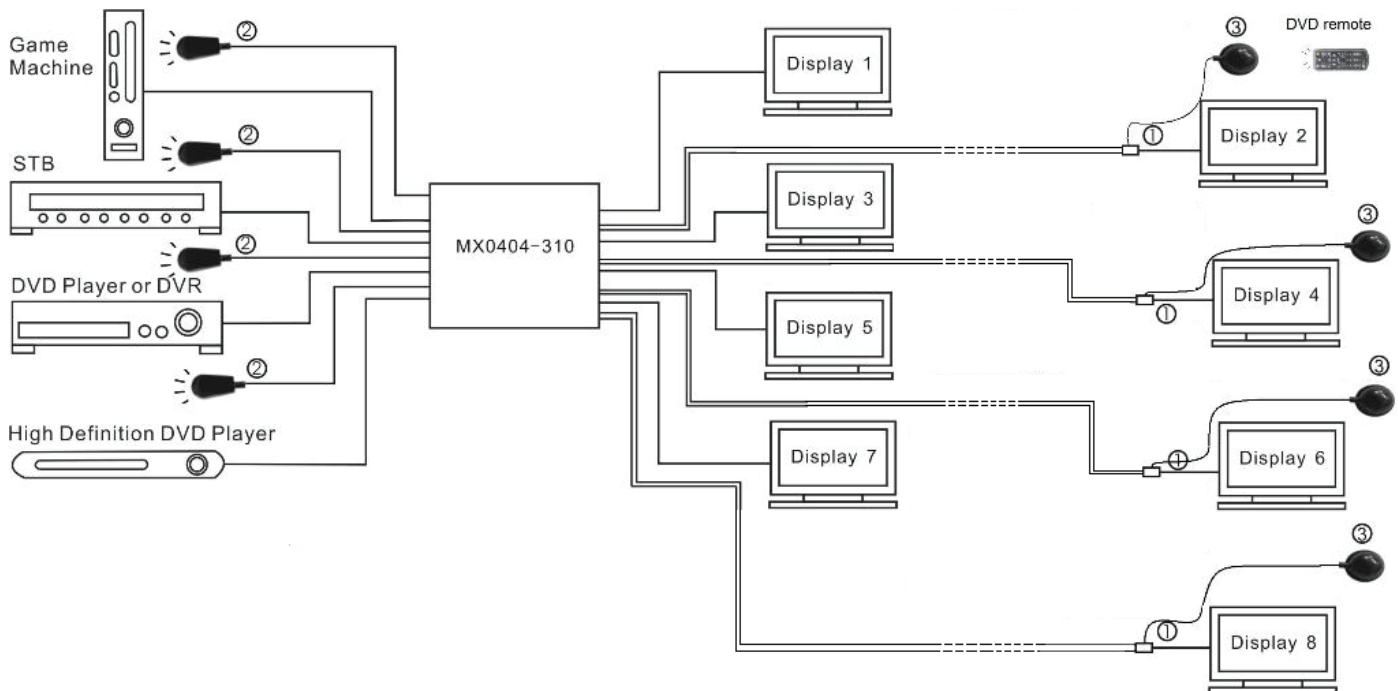

Note: ① UTP receiver, ② IR TX, ③ IR RX

System Controls
FRONT PANEL CONTROL

➢ Used for switching inputs to the various outputs.

➢ There are 4 output sections each with a push toggle button for selecting which input is being routed to the output repersented by 4 input LEDs. The LED related to the input number will be lit when selected.

➢ Diagram below indicates that input 1 is being routed to output 1.
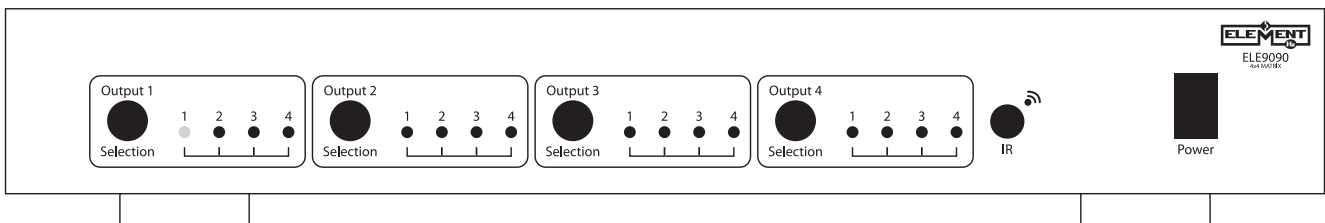
IR REMOTE CONTROL

➢ User can use the IR remote to route the HDMI signal.

➢ There are four group key pads for the four output ports. For each source selection, there are 4 number keys and two arrow keys. Press number key to select specific input port. Press Left arrow to select previous input or press Right arrow to select next input.


toggle to select the specific input
toggle input backward
toggle iput forward

output port number
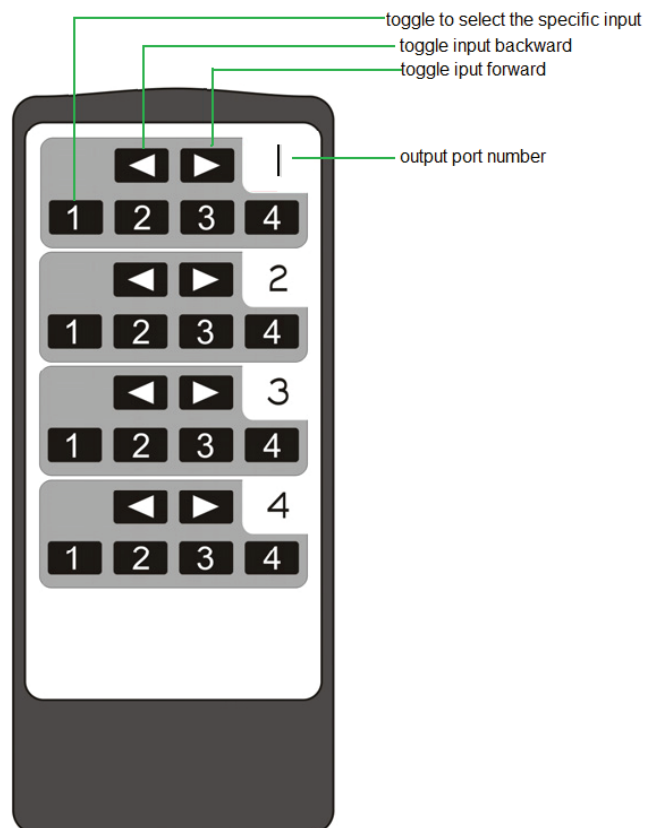
IR EXTENDER CONTROL

➢ User can use the IR receiver cable to change the IR receiver position.

➢ If controlling the ELE9090 through the 1/8" (3.5 mm) input jack on the rear panel, connect the IR cable directly into IR Ext socket.
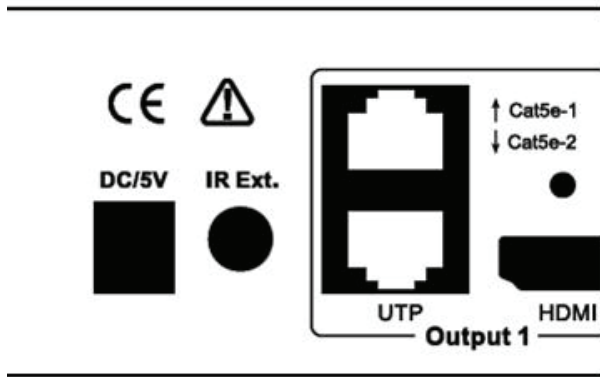
IR CALL BACK CONTROL OF THE MATRIX

➢ User can control the matrix via the IR call back system.

➢ This function can be disabled or enabled.

➢ Enable the function: press the output 2 selection button and the key lock button at the same time for about 3 seconds. After all the output 1 LEDs and the output 2 LEDs flash once, the function is enabled.

➢ Disable the function: press the output 2 selection button and the key lock button at the same time for about 3 seconds. After all the output 1 LEDS and the output 2 LEDS flash twice, the function is disabled.
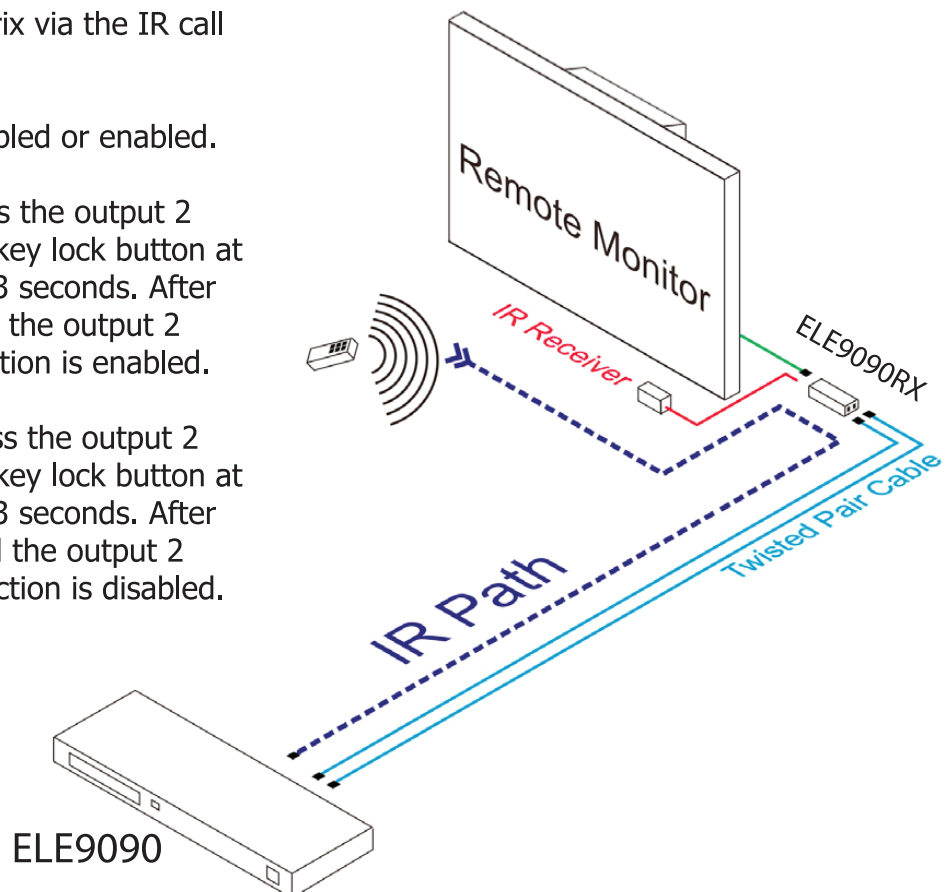
IR CALL BACK TO CONTROL THE SOURCE DEVICE

➤ The matrix can not only extend the HDMI signal to the HDMI receiver to remote rooms, but it can also pass the IR signal through the IR call back system to the HDMI source.
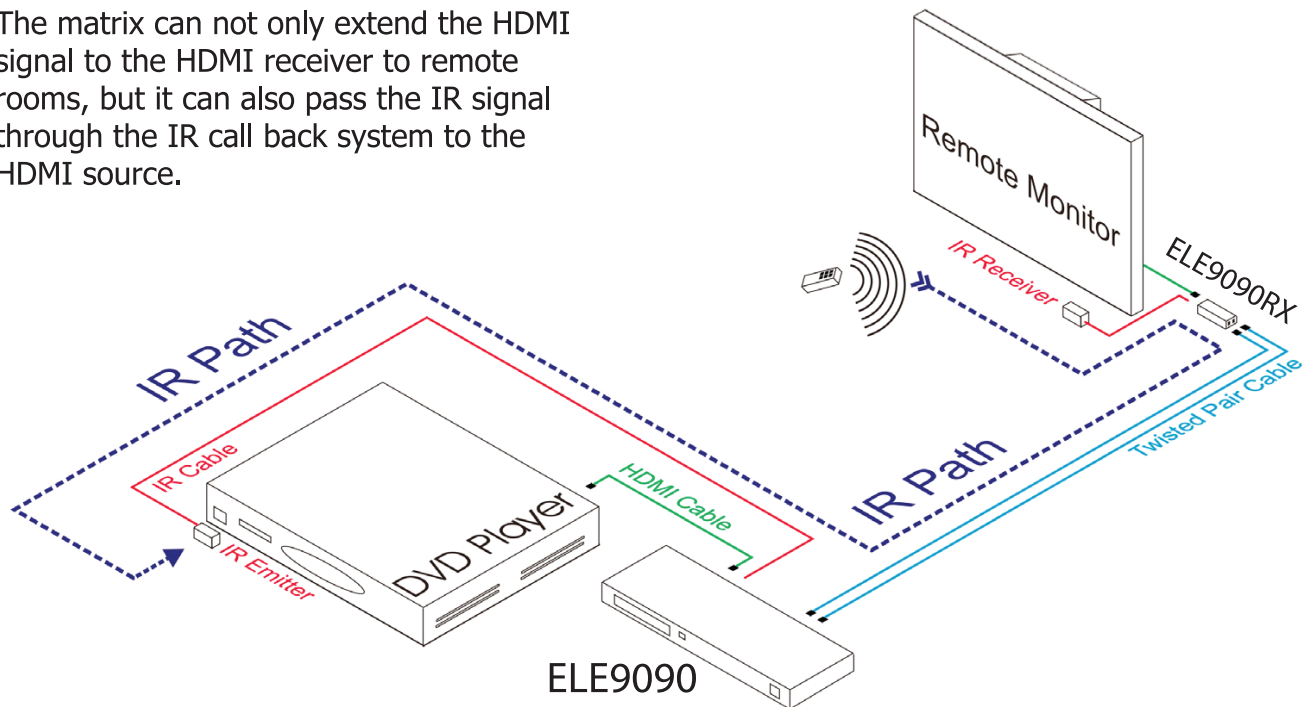

➤ There are four IR emitter sockets for connecting the IR TX cables. The IR signal corresponds with the HDMI signal. That is, when user is watching the STB signal which is connected to input 3, the IR signal will go to the IR TX-3 socket.

➤ Because the each IR emitter socket is related to one HDMI input port. Be sure that the IR TX cable connects to the IR emitter socket and stick the IR emitter to the IR window of the HDMI source device which has been connect to the corresponding input port. For example, if STB is connected to input 1, then can control the STB via the IR call back system by plugging the IR TX jack into the IR emitter socket for source 1. User must also place the IR emitter near the IR window of the STB.
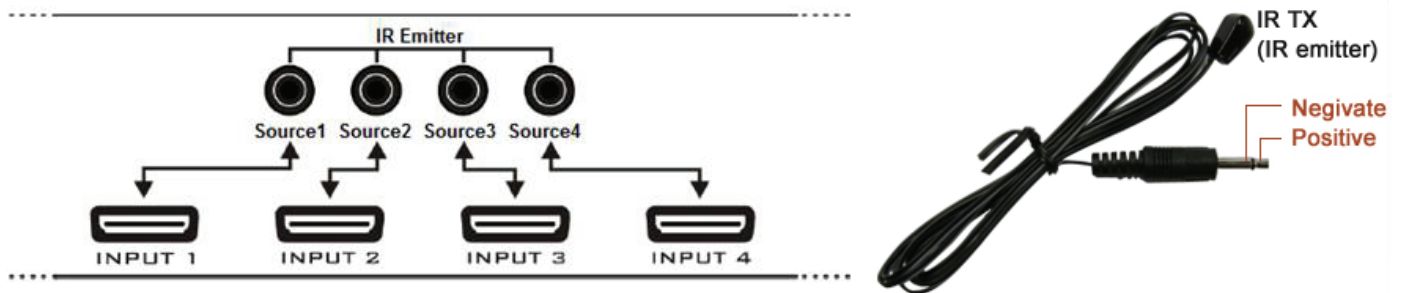
RS232 REMOTE CONTROL

➢ Com port setting:

Baud Rate:	9600 bps
Data bits:	8 bits
Parity:	None
Stop bits:	1 bit
Flow control:	None

➢ Control command format:

cir + __ + code + →

cir	keyword
__	Space
code	Control Code
→	Enter

for example:

" cir __ 41 →"

(hex: 63 69 72 20 34 31 0D 0A)
when the ELE9090 receives this command, it will
change the Outport1 source to the next input port.

" cir __ 09 →"

(hex: 63 69 72 20 30 39 0D 0A)
to select the Outport1 source to the input port1.

➢ Control code:

Outport 1	< "57"	> "41"	
1 "09"	2 "1D"	3 "1F"	4 "0D"

Outport 2	< "1B"	> "11"	
1 "17"	2 "12"	3 "59"	4 "08"

Outport 3	< "55"	> "48"	
1 "5E"	2 "06"	3 "05"	4 "03"

Outport 4	< "07"	> "40"	
1 "18"	2 "44"	3 "0F"	4 "51"

RS232 REMOTE CONTROL

➢ User interface:

ELE9090 V2.00

Message Receive

Status   Clear

Send (ASC)

Send

Connect State
○ Connect
○ Disconnect

Com Select
COM1

Disconnect

ELE9090

➢ The Message Window:

The "receive window" will show the message received from ELE9090. When you click the Control Buttons or send Control Command to ELE9090, it will send out the "operation results" message.

Message Receive

HDMI Out1 ➡ HDMI In3
HDMI Out2 ➡ HDMI In1
HDMI Out3 ➡ HDMI In1
HDMI Out4 ➡ HDMI In3

RS232 REMOTE CONTROL

➢ Connection Status:

The connection status shows whether you connected the ELE9090 successfully or not. Connection status is checked every 2 seconds.

➢ Status Button:

Click this button to read the status of the ELE9090. The status is about which input is selected by the output.

➢ Connect State:

Connect state shows the com open or not. If it is open, the state is green. Otherwise, the state is red.

➢ Com Select:

Select the COM that you used.

➢ The Connect Button:

The word on this button will change as the connection state changes. If the word is "Disconnect", then click this button, the com will close. If the word is "Connect", then click this button, the com will open.

ELE9090 V2.00

Message
Receive

△

▽

Status   Clear

Send (ASC)

△   Send

▽

Connect State
○ Connect
○ Disconnect

Com Select
COM1 ▽

Disconnect

DIP SWITCH FOR EDID

➢ Setting DIP Switch for EDID

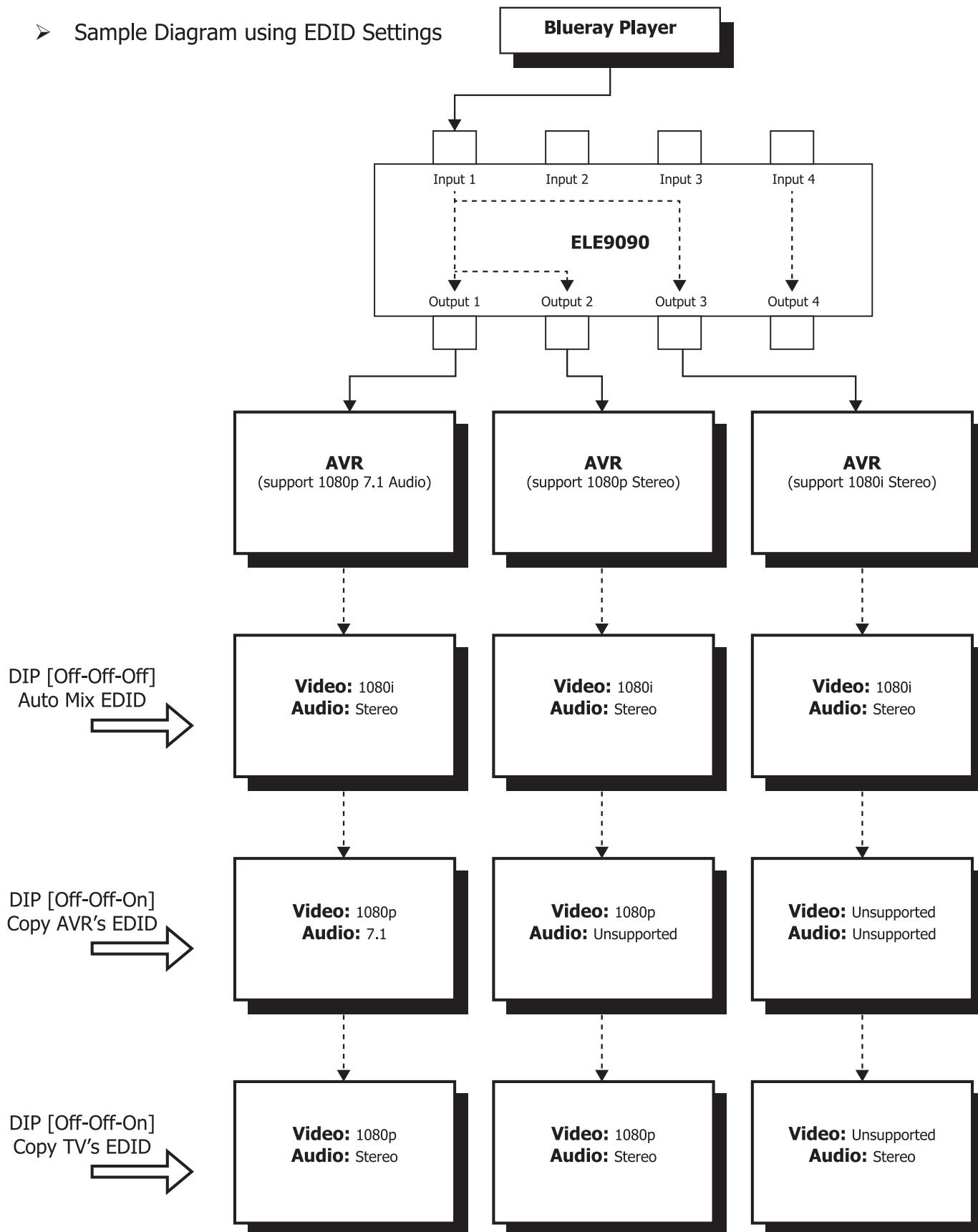| Position 1	Position 2	Position 3	Function
Off	Off	Off	**EDID Auto Mix** EDID auto mix is compatible with all HDMI syncs that choose the same source. The matrix will mix the EDID data of all HDMI syncs that choose the same source and forward the mixed EDID to the HDMI source device. EDID mixing allows you to enable all the connected sync devices to have video and audio they can display or output. For example, one TV is 1080p with stereo audio, and another is 1080i with 5.1 audio. The mixed EDID will be 1080i with stereo audio. (Simultaneously press and hold the output 1 and output 4 buttons for three seconds to do the EDID mixing.)
Off	Off	On	**Copy EDID from HDMI Output** Copies the output's EDID data to the currently selected input port. For example, when output 3 selects input 1, press and hold the output 3 button for 3 seconds to copy the its EDID data to input 1.
Off	On	Off	**1080p with stereo (Using Embedded EDID)** The matrix will use the embedded 1080p with stereo audio EDID when the DIP switch is in this mode.
Off	On	On	**1080i with stereo (Using Embedded EDID)** The matrix will use the embedded 1080i with stereo audio EDID when the DIP switch is in this mode. This setting can be used for displays that can't support 1080p.
On	Off	Off	**1080p with 5.1 audio (Using Embedded EDID)** The matrix will use the embedded 1080p with 5.1 audio EDID when the DIP switch is in this mode.
On	Off	On	**1080p with 7.1 audio (Using Embedded EDID)** The matrix will use the embedded 1080p with 7.1 audio EDID when the DIP switch is in this mode.

➢ Examples of EDID Settings

A.) How to reset EDID to factory default setting? The default EDID is 1080p with stereo audio. Simply, set the DIP Switch to [Off-On-Off] and power on the matrix. The EDID for each input will be set to 1080p with stereo audio.

B.) How to copy the EDID of AVR which is 7.1 audio to the special input port, on this input port connected a BD player? Set DIP to [Off-Off-On]. Connect the AVR to one of the output ports. Power on the matrix. Select the source of the AVR to the input port that's connected to the BD-player. Press and hold the output 1 key for more than 3 seconds, the matrix will copy the EDID data from the output to the input.

DIP SWITCH FOR EDID

➢ Sample Diagram using EDID Settings

Blueray Player

Input 1   **Input 2**   **Input 3**   **Input 4**

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Output 1   **Output 2**   **Output 3**   **Output 4**

AVR (support 1080p 7.1 Audio)	**AVR** (support 1080p Stereo)	**AVR** (support 1080i Stereo)

DIP [Off-Off-Off]
Auto Mix EDID ⟹

Video: 1080i **Audio:** Stereo	**Video:** 1080i **Audio:** Stereo	**Video:** 1080i **Audio:** Stereo

DIP [Off-Off-On]
Copy AVR's EDID ⟹

Video: 1080p **Audio:** 7.1	**Video:** 1080p **Audio:** Unsupported	**Video:** Unsupported **Audio:** Unsupported

DIP [Off-Off-On]
Copy TV's EDID ⟹

Video: 1080p **Audio:** Stereo	**Video:** 1080p **Audio:** Stereo	**Video:** Unsupported **Audio:** Stereo

NOTICE

Performance Guidelines

➢ Be sure to use the product as directed to maximize the performance quality and the operational lifetime of your hardware.

➢ Be sure to place the device in a suitable environment. Do NOT place in damp, dusty, erosive, or oxidative areas. Keep out of high-temperature locations as well as any other extreme conditions.

➢ Be sure the hardware is safe and secure. Do NOT install in areas exposed to heavy motion or places that put the hardware at risk of falling.

➢ Do NOT touch the power adapter with wet hands.

➢ Do NOT pull on the power supply cord under any circumstance.

➢ Be sure to turn the power off when not in use.

➢ Do NOT open hardware, remove cover, or touch any parts within the device.

➢ For best result, be sure to use the factory supplied power adapter.

➢ Before powering on, be sure to check the connections carefully for accuracy.

Troubleshooting

➢ No Power...First, double check the connections at both ends of the power supply. Also, be sure the power switch is in the on position.

➢ No Picture...First, make sure the display is powered on and that the devices are properly connected. Then, confirm the status of the source device is powered on and transmitting signal. If the problem persists, check the signal quality at each connection by testing each cable and each connection in the signal path.

➢ Obscure Picture...First, try re-connecting each cable to eliminate any poor connections. If the problem persists, check the signal quality at each connection by testing each cable and each connection in the signal path.

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4x4 HDMI Matrix Switch

engineered by Skywalker

www.skywalker.com