



# EL-41S-4K22

4-Way Full 4K HDMI Switcher with local IR

**OPERATION MANUAL**

**HDMI**<sup>®</sup>  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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## SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply. Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

## VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
<b>RDV1</b>	03/10/2016	Preliminary release
<b>RDV1a</b>	04/10/2016	Amends to YUV Colourspace
<b>V1.00</b>	04/09/2025	Add an HDMI output on/off RS-232 command.

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## 1. INTRODUCTION

This 4-Way HDMI Switcher is designed to enable the user to switch between any of the four connected HDMI sources to send video and audio to a single HDMI display. This switcher fully supports 4K resolutions and is HDMI2.0 and HDCP 2.2 compliant, ensuring maximum compatibility with the latest 4K UHD sources and displays. The EL-41S-4K22 supports all the latest features of the HDMI 2.0 specification such as 4K UHD resolutions (4K2K@60Hz – YUV4:4:4), HDR (High Dynamic Range), ‘Deep Colour’, and High Definition audio. In addition, this switcher also features an Auto-Switching function which detects the last active input and switches to this input automatically for display. Control is via IR remote control and RS-232.

## 2. APPLICATIONS

- /// Home Theaters
- /// Public Commercial Displays
- /// Showrooms and Demo Rooms
- /// Hotel Lobby Information Displays
- /// Demo Room Displays

## 3. PACKAGE CONTENTS

- /// IR Remote control (battery included)
- /// Operation Manual
- /// 5V/2.6A DC Power Adaptor
- /// 4 by 1 HDMI Switcher

## 4. SYSTEM REQUIREMENTS

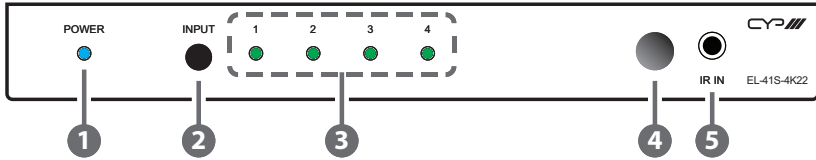
- /// HDMI source equipment such as UHD media players, video game consoles or set-top boxes.
- /// HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- /// The use of “Premium High Speed HDMI” cables is highly recommended.

## 5. FEATURES

- /// HDMI2.0, HDCP 2.2 and DVI compatible
- /// Supports 4 HDMI inputs and 1 HDMI output
- /// Supports HDTV resolutions up to 4K2K (3840x2160@24/25/30/50/60 & 4096x2160 @24/25/30/50/60Hz) including HDR
- /// Supports pass-through of HD audio formats of PCM 2/5.1/7.1CH, Dolby Digital 2/5.1CH, DTS 2/5.1CH, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- /// Supports control via IR remote and RS-232
- /// Supports Auto-switching which can send the signal of the latest active HDMI input source to output port

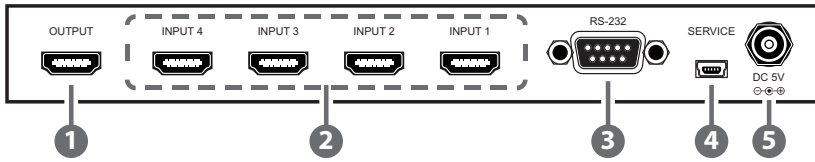
## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Transmitter Front Panel



- ❶ **Power LED:** This LED will illuminate to indicate the unit is on and receiving power.
- ❷ **INPUT BUTTON:** Press this button to sequentially switch through the available inputs..
- ❸ **INPUT 1~4 LEDs:** The illuminated LED indicates which source is currently selected..
- ❹ **IR WINDOW:** Accepts IR signals from the optional IR remote for control of this unit only.
- ❺ **IR IN:** Connect to the optional IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.

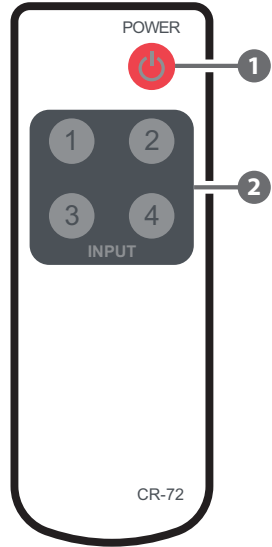
## 6.2 Transmitter Rear Panel



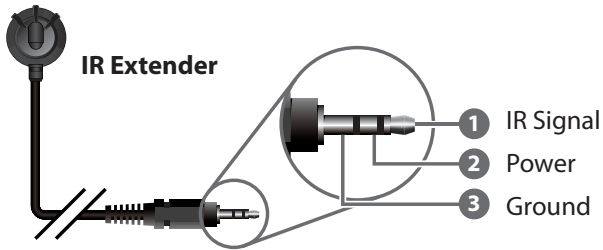
- 1 OUTPUT:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.
- 2 INPUT 1~4:** Connect to HDMI source equipment such as media players, game consoles or set-top boxes.
- 3 RS-232:** Connect directly to your PC/laptop to send RS-232 commands to control the unit. (refer to Sections 6.5 & 6.6 for details).
- 4 SERVICE:** This slot is reserved for firmware update use only.
- 5 DC 5V:** Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power.

### 6.3 IR Remote

- ① **POWER:** No function .
- ② **INPUT 1~4:** Press any of these input. to switch to the corresponding input.



### 6.4 IR Cable Pin Assignment



## 6.5 RS-232 Pin Assignment

Unit			Terminal	
PIN	Assignment		PIN	Assignment
1	NC		1	NC
2	Tx		2	Rx
3	Rx	▶	3	Tx
4	NC	◀	4	NC
5	GND		5	GND
6	NC		6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 115,200 bps

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

## 6.6 RS-232 Commands

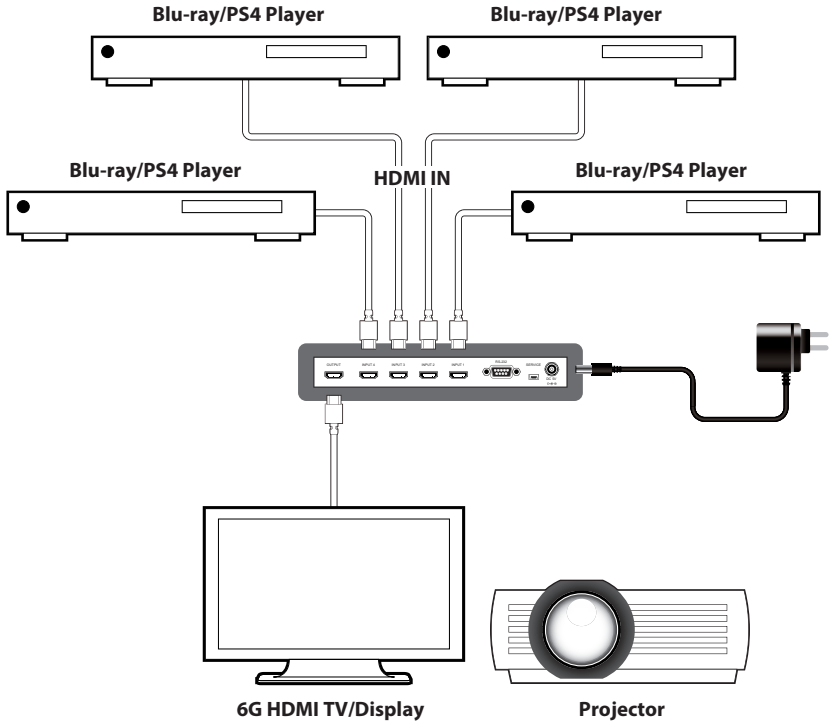
COMMAND	DESCRIPTION	PARAMETERS
<b>OUT N</b>	SET/SHOW CURRENT INPUT SELECTION	OUT N, N=1~4 (INPUT), N=0 (MUTE), N=? (STATUS)
<b>SOURCEDET</b>	SHOW INPUT INFORMATION	NONE
<b>SINKINFO</b>	SHOW SINK INFORMATION	NONE
<b>HDCPIN N1 N2</b>	SET/SHOW INPUT HDCP STATUS	HDCPIN N1 N2, N1=1~4 (INPUT), N2=1~3, N=? (STATUS) 1:FOLLOW IN 2:FOLLOW OUT 3:APPLE MODE
<b>EDIDMODE N</b>	SET/SHOW EDID MODE	EDIDMODE N, N=1~2, N=? (STATUS) 1:ALL 2:APPOINT
<b>EDIDALL N</b>	SET/SHOW EDID ALL SELECTION	EDIDALL N, N=1~7, N=? (STATUS) 1:FHD/2CH 2:FHD/MCH 3:UHD/2CH 4:UHD/MCH 5:UHD+/2CH 6: UHD+/MCH 7:SINK
<b>EDIDIN N1 N2</b>	SET/SHOW EDID INPUT SELECTION	EDIDIN N1 N2, N1=1~4 (INPUT), N2=1~7, N1=? (STATUS) 1:FHD/2CH 2:FHD/MCH 3:UHD/2CH 4:UHD/MCH 5:UHD+/2CH 6: UHD+/MCH 7:SINK
<b>AUTOSWITCH N</b>	SET/SHOW AUTO SWITCHING MODE	AUTOSWITCH N, N=0~1, N=? (STATUS) 0:OFF 1:ON
<b>ECHO N</b>	SET/SHOW CONSOLE AUTO ECHO MODE	ECHO N, N=0~1, 0:OFF, 1:ON, N=? (STATUS)

COMMAND	DESCRIPTION	PARAMETERS
<b>FADEFAULT</b>	SET UNIT TO FACTORY DEFAULT	NONE
<b>VER</b>	SHOW UNIT FIRMWARE VERSION	NONE
<b>REBOOT</b>	SYSTEM REBOOT	NONE
<b>?</b>	SHOW DESCRIPTION OF COMMAND	NONE
<b>HELP</b>	SHOW DESCRIPTION OF COMMAND	NONE
<b>HDMI N</b>	ENABLE OR DISABLE THE HDMI OUT SIGNAL	HDMI N, N=0~1, N=? (STATUS) 0: OFF 1: ON

## 6.7 Factory Default settings

FACTORY DEFAULT SETTINGS	
<b>OUT</b>	INPUT 1
<b>EDID MODE</b>	ALL Mode
<b>EDID</b>	SINK
<b>HDCP</b>	Follow Out
<b>AutoSwitch</b>	OFF
<b>ECHO</b>	ON

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>Video Bandwidth</b>	600MHz/6Gbps
<b>Input Ports</b>	4x HDMI 1x IR 1x RS-232 1x Mini-USB
<b>Output Ports</b>	1x HDMI
<b>Supported Resolutions</b>	VGA~WUXGA 480i ~ 1080p@60Hz 4K@24/25/30/50/60 Hz
<b>HDMI Cable I/O Distance*</b>	3M (4K@60Hz, YUV 4:4:4 8-bit) 5M (4K@60Hz, YUV 4:2:0 8-bit) 10M (1080p@60Hz, 8-bit)
<b>IR Frequency</b>	30~50Hz
<b>Baud Rate</b>	115200 bps
<b>Power Supply</b>	5V DC/2.7A (US/EU standards, CE/FCC/UL certified)
<b>ESD Protection</b>	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
<b>Chassis Material</b>	Metal
<b>Silkscreen colour</b>	Black
<b>Dimensions</b>	213.5mm × 25mm × 108mm (W×H×D)[All Inclusive]
<b>Weight</b>	608g
<b>Operating Temperature</b>	0°~40°C/32°F~104°F
<b>Storage temperature</b>	-20°C~60°C/-4°F~140°F
<b>Relative Humidity</b>	20~90% RH (no condensation)
<b>Power Consumption</b>	6.6 W

## 8.2 Video Specifications

Supported Resolutions (Hz)	Input	Output
<b>640x480@60/72/75/85</b>	✓	✓
<b>800x600@56/60/72/75/85</b>	✓	✓
<b>1024x768@60/70/75/85</b>	✓	✓
<b>1280x1024@60</b>	✓	✓
<b>1366x768@60</b>	✓	✓
<b>1600x1200@60</b>	✓	✓
<b>1920x1080@60</b>	✓	✓
<b>1920x1200@60</b>	✓	✓
<b>720x576i@50</b>	✓	✓
<b>720x480i@59.94/60</b>	✓	✓
<b>720x480p@59.94/60</b>	✓	✓
<b>720x576p@50</b>	✓	✓
<b>1280x720p@50/59.94/60</b>	✓	✓
<b>1920x1080i@50/59.94/60</b>	✓	✓
<b>1920x1080p@23.97/24/25/29.97/30/50/59.94/60</b>	✓	✓
<b>3840x2160@24/25/30</b>	✓	✓
<b>3840x2160@50/60</b>	✓	✓
<b>4096x2160@24/25/30</b>	✓	✓
<b>4096x2160@50/60</b>	✓	✓

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>10GbE</b>	10 Gigabit Ethernet
<b>4K UHD</b>	4K Ultra-High-Definition (10.2Gbps max)
<b>Gbps</b>	Gigabits per second
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>LED</b>	Light-Emitting Diode
<b>LPCM</b>	Linear Pulse-Code Modulation
<b>MHz</b>	Megahertz







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