



4K2K
HDCP2.2



EL-41S-4K22

4-Way HDMI Switcher (4K, HDCP2.2, HDMI2.0, IR)

/// OPERATION MANUAL

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.

REVISION HISTORY

VERSION NO.	DATE (DD/MM/YY)	SUMMARY OF CHANGE
RDV1	03/10/16	Preliminary Release

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1. INTRODUCTION

This 4 by 1 4K UHD HDMI Switcher is a brand new high performance design for the next generation of audio/video equipment. It allows a single HDMI output to switch between 4 HDMI sources. This unit provides a high level of audio and video performance with support for resolutions up to 4K@60Hz (YUV 4:2:0) and high definition digital audio formats such as LPCM 7.1 (with sampling rates up to 192kHz), Dolby TrueHD, Dolby Digital Plus, Dolby Atmos and DTS-HD Master Audio. The included auto switching functionality allows for the possibility of hands-free, user friendly, operation. Control is provided via front panel buttons, IR remote, RS-232, and telnet.

2. APPLICATIONS

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

3. PACKAGE CONTENTS

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

4. SYSTEM REQUIREMENTS

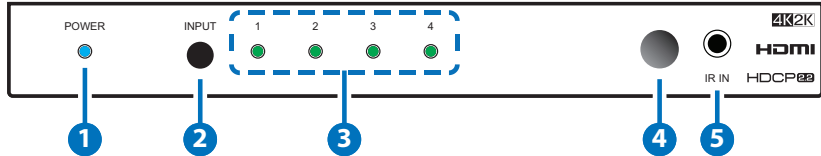
- HDMI source equipment such as media players, video game consoles or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI 2.0 and DVI 1.0 compliant
- HDCP 2.2 compliant
- 4 HDMI inputs and 1 HDMI output
- 3D signal support (with 3D source and compatible 3D TV)
Supports 4K UHD resolutions up to 4096x2160@60Hz (YUV 4:2:0, 8-bit)
Pass-through of high definition audio including LPCM up to 7.1, Dolby Digital, DTS, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio

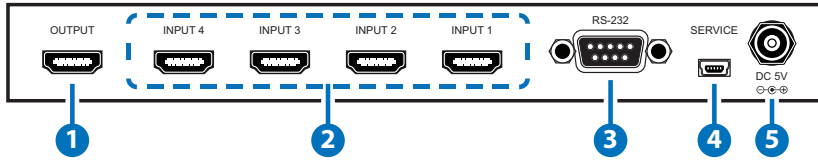
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Transmitter Front Panel



- ❶ **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.
- ❷ **INPUT:** Press this button to sequentially switch through the available inputs.
- ❸ **1~4:** The illuminated LED indicates which source is currently selected.
- ❹ **IR Window:** Accepts IR signals from the included IR remote for control of this unit only.
- ❺ **IR IN:** Connect to the provided 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.

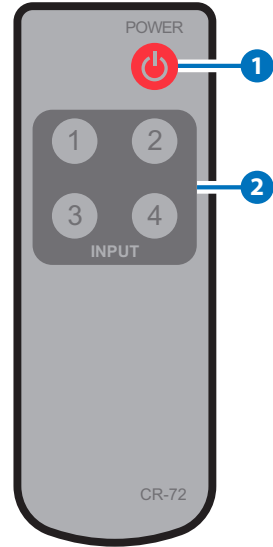
6.2 Transmitter Rear Panel



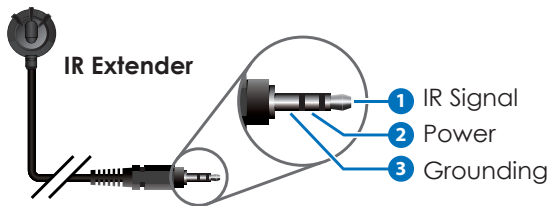
- 1 OUTPUT:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.
- 2 INPUT 1~4:** Connect to HDMI source equipment such as media players, game consoles or set-top boxes.
- 3 RS-232:** Connect directly to your PC/laptop to send RS-232 commands to control the unit.
- 4 SERVICE:** 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 Remote Control

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



6.4 IR Pin Definitions



6.5 RS-232 Protocols

MATRIX			REMOTE CONTROLLER	
PIN	Definition		PIN	Definition
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: 115200bps

Data bits: 8

Parity: None

Flow Control: None

Stop Bits: 1

6.6 Telnet and RS-232 Commands(not final version)

Command Name	Description	Parameters
AN	Switch Output A to Input N	N=1~4
BN	Switch Output B to Input N	N=1~4
CN	Switch Output C to Input N	N=1~4
DN	Switch Output D to Input N	N=1~4
EN	Switch All Output to Input N	N=1~4
AB.....N	Switch output AB....to input N	N=1~4
SETIP <x.x.x.x><x.x.x.x><x.x.x.x>	Setting IP, Subnet, Gateway (Static IP)	X=0~255
IPCONFIG	Display the Current IP Configuration	NONE
RSTIP	Set IP Configuration to DHCP	NONE
P0	Power Off	NONE
P1	Power On	NONE
STOREN	Store Current I/O to Position N	N=1~4
SHOWN	Show Current Port N I/O Position	N=1~4
PRESETN	Preset the store I/O Position N	N=1~4
NameN N1	Name port N as N1	N=1~4 N1=ABCDEFGH (Max Length=8)
ST	Show Unit's Firmware Version	NONE
EMN	Set EDID Mode N	N=1 (Standard), 2(TV)
RS	Reset Routing to Default	NONE
USBISP	Update FW via USB	NONE
HELP(?)	Display all available commands	NONE
QUIT	Quit Telnet	NONE

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

6.7 Telnet Control

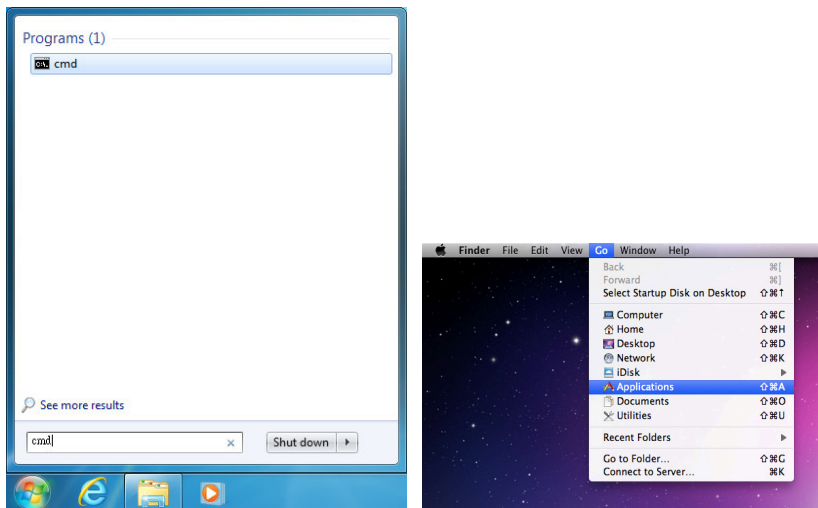
Before attempting to use telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

To access Telnet in Windows 7, click on the "Start" menu and type "cmd" in the search field, then press "Enter".

Under Windows XP go to the "Start" menu, click on "Run", type "cmd" then press "Enter".

Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.



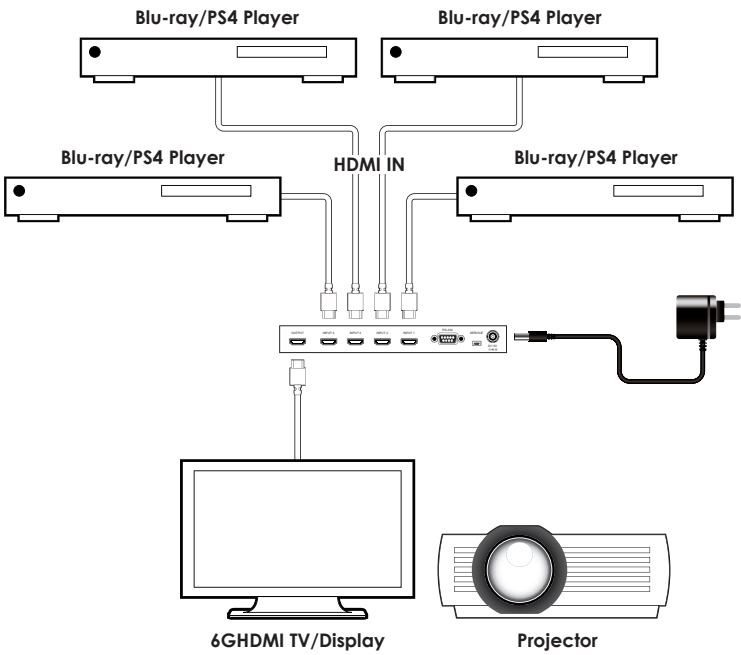
Once in the CLI (Command Line Interface) type "telnet" followed by the IP address of the unit and then hit "Enter".

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>telnet 192.168.XX.XX 23
```

This will connect us to the unit we wish to control. Type "help" or "?" to list the available commands.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

Video Bandwidth	300MHz/9Gbps
Input Ports	4 x HDMI 1 x IR 1 x RS232 1 x Mini USB (Service) 1 x RJ45 (Control)
Output Ports	1 x HDMI
Supported Resolutions	VGA~WUXGA 480i~1080p@60Hz 4K@24/25/30Hz (YUV 4:4:4) 4K@50/60Hz (YUV 4:2:0)
HDMI Cable I/O Distance*	5M (4K@60Hz, YUV 4:2:0, 8-bit) 10M (1080p@60Hz, 8-bit)
IR Frequency	30~50kHz
Baud Rate	115200 bps
Power Supply	5VDC/2.7A (US/EU standards, CE/FCC/ UL certified)
ESD Protection	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Chassis Material	Metal
Silkscreen color	Black
Dimensions	213.5mm × 25mm × 108mm (W×H×D) [All Inclusive]
Weight	608g
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 (no condensation)
Power Consumption	6.6 W

9. TIMING

DVI AND HDMI SUPPORTED RESOLUTIONS (HZ)	INPUT	OUTPUT
640x480@60/72/75/85	✓	✓
800x600@56/60/72/75/85	✓	✓
1024x768@60/70/75/85	✓	✓
1280x1024@60	✓	✓
1366x768@60	✓	✓
1600x1200@60	✓	✓
1920x1080@60	✓	✓
1920x1200@60	✓	✓
720x576i@50	✓	✓
720x480i@59.94/60	✓	✓
720x480p@59.94/60	✓	✓
720x576p@50	✓	✓
1280x720p@50/59.94/60	✓	✓
1920x1080i@50/59.94/60	✓	✓
1920x1080p@23.97/24/25/29.97/30/50/59.94/60	✓	✓
3840x2160@24/25/30	✓	✓
3840x2160@50/60 (YUV 4:2:0)	✓	✓
4096x2160@24/25/30	✓	✓
4096x2160@50/60 (YUV 4:2:0)	✓	✓



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RDV1