CPLUS-V4H1H
4K UHD⁺ 4×1 HDMI Switcher

Operation Manual

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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.

REVISION HISTORY

VERSION NO.	DATE	SUMMARY OF CHANGE
RDV1	03/10/16	Preliminary release
VS1	11/10/16	Final technical review
VS2	16/01/18	Additional RS-232 commands & Updated resolution support list

CONTENTS

1. INTRODUCTION

This 4 by 1 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 comes with full support for 18Gbps (600Mhz) resolutions up to, and including 4K@60Hz (4:4:4, 8-bit) as well as support for 16-bit Deep Color up to 1080p60Hz, HDR (High Dynamic Range), HD audio and other features defined by the HDMI 2.0a specification. The included auto switching functionality allows for the possibility of hands-free, user friendly, operation. Control is provided via front panel buttons, IR remote, and RS-232.

2. APPLICATIONS

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

3. PACKAGE CONTENTS

- 1×4 by 1 HDMI Switcher
- 1×5V/2.6A DC Power Adapter
- 1×3.5mm to IR Extender Cable [Optional]
- 1×Remote Control (CR-72) [Optional]
- 1×Shockproof Feet (Set of 4)
- 1×Operation Manual

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 2.0a and DVI 1.0 compliant
- HDCP 1.x and 2.2 compliant
- 4 HDMI inputs and 1 HDMI output
- Supports UHD resolutions up to 3840×2160@60Hz (4:4:4, 8-bit) & 4096×2160@60Hz (4:4:4, 8-bit)
- Supports 16-bit Deep Color up to 1080p@60Hz
- Supports 10-bit and 12-bit HDR pass-through
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- CEC pass-through
- Support Internal/External EDID management
- Controllable via front-panel buttons, RS- 232, and optional IR remote

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
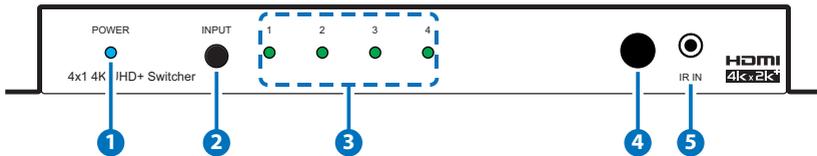
1 **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.

2 **INPUT BUTTON:** Press this button to sequentially switch through the available inputs.

3 **INPUT 1~4 LEDs:** The illuminated LED indicates which source is currently selected.

4 **IR WINDOW:** Accepts IR signals from the optional IR remote for control of this unit only.

5 **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 Rear Panel
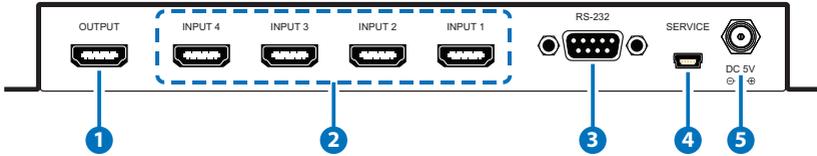
1 **OUTPUT:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.

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 [Optional]

1 **POWER:** No function.

2 **INPUT 1~4:** Press any of these buttons to switch to the corresponding input.
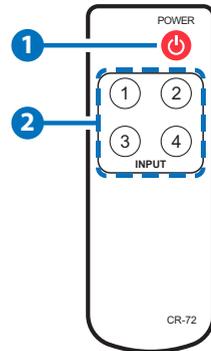
6.4 IR Cable Pinouts [Optional]

1 Infrared
2 Power
3 Ground

6.5 RS-232 Control

UNIT	
Pin	Pinout
1	
2	Tx
3	Rx
4	
5	GND
6	
7	
8	
9	

TERMINAL	
Pin	Pinout
1	
2	Rx
3	Tx
4	
5	GND
6	
7	
8	
9	

SERIAL PORT SETTINGS	
Baud Rate	115200
Data Bits	8
Parity Bits	None
Stop Bits	1
Flow Control	None

6.6 RS-232 Commands

Command	Description and Parameters
?	Show the full command list.
HELP	Show the full command list.
OUT **N1**	Select the input to display. Available values for **N1**: 1~4 [Input number] 0 [Mute]
OUT **?**	Show which input is currently selected.
SOURCEDET	Show the current input detection status.
SINKINFO	Show information about the connected display.
HDCPIN **N1 N2**	Set the HDCP mode for input **N1**. **N1** = 1~4 [Input number] Available values for **N2**: 1 [Follow in] 2 [Follow out] 3 [HDCP Disabled]

Command	Description and Parameters
HDCPIN **?**	Show the current HDCP status.
EDIDMODE **N1**	Set the EDID Mode. Available values for **N1**: 1 [All] 2 [Appoint]
EDIDMODE **?**	Show the current EDID mode.
EDIDALL **N1**	Set the EDID to use in "EDID All" mode. Available values for **N1**: 1 [FHD/2CH] 2 [FHD/MCH] 3 [UHD/2CH] 4 [UHD/MCH] 5 [UHD+/2CH] 6 [UHD+/MCH] 7 [Sink]
EDIDALL **?**	Show the currently selected EDID for "EDID All" mode.
EDIDIN **N1 N2**	Set the EDID to assign to Input **N1** in "Appoint" mode. **N1** = 1~4 [Input number] Available values for **N2**: 1 [FHD/2CH] 2 [FHD/MCH] 3 [UHD/2CH] 4 [UHD/MCH] 5 [UHD+/2CH] 6 [UHD+/MCH] 7 [Sink]
EDIDIN **?**	Show the EDID assignments for all inputs mode.
AUTOSWITCH **N1**	Enable or disable the auto switching mode. Available values for **N1**: 0 [Off] 1 [On]
AUTOSWITCH **?**	Show the current state of the auto switch mode.

Command	Description and Parameters
ECHO **N1**	Enable or disable the console's text echo mode. Available values for **N1**: 0　　　　　　　[Off] 1　　　　　　　[On]
ECHO **?**	Show the current state of the console's text echo mode.
INNAME **N1 N2**	Set the name for Input **N1**. **N1** = 1~4 [Input number] **N2** = {name}　　　[16 chars max]
INNAME **?**	Show the names of all inputs.
OSDTIMEOUT **N1**	Set the OSD timeout length. **N1** = 0~60　　　　[Seconds]
OSDTIMEOUT **?**	Show the current OSD timeout length.
OSDSHOW **N1**	Set the OSD information display behavior. Available values for **N1**: 0　　　　　　　[Off] 1　　　　　　　[Timeout] 2　　　　　　　[Always on]
OSDSHOW **?**	Show the current OSD information display behavior setting.
FADEFAULT	Reset all settings to the factory defaults.
VER	Show the unit's current firmware version.
REBOOT	Reboot the unit.

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

7. CONNECTION DIAGRAM

Blu-ray Player **Set-top Box** **Game Console** **Satellite Receiver**

HDMI Inputs

Power Supply

HDMI Output **RS-232**

Serial Equipped Computer

UHDTV
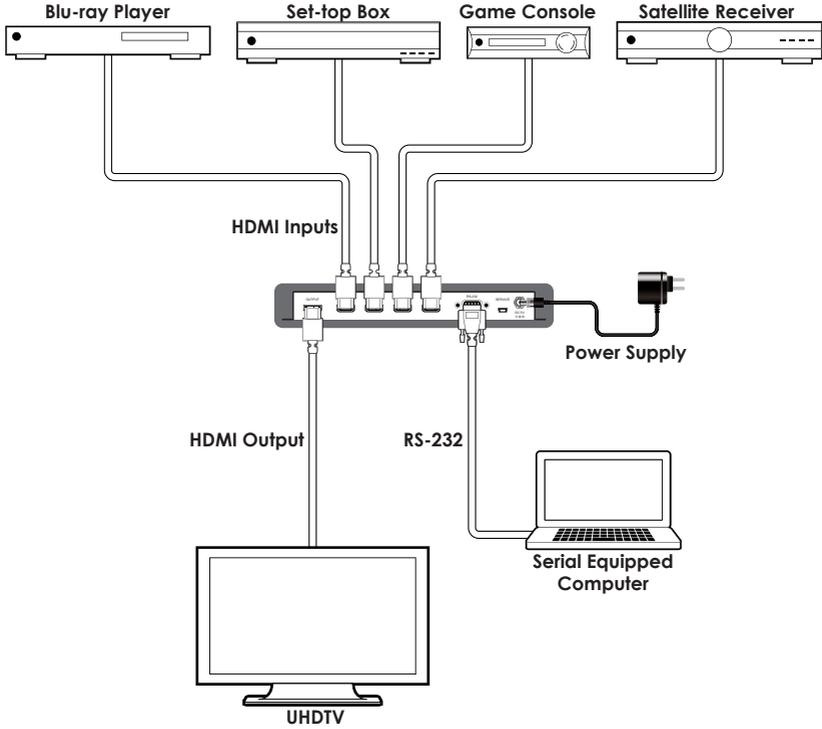
8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	600MHz/18Gbps
Input Ports	4×HDMI
Output Port	1×HDMI
Control Interfaces	1×IR Extender (3.5mm)
	1×RS-232 (9-pin D-sub)
HDMI Cable Length	15m (1080p@60Hz, 8-bit)
	10m (1080p@60Hz, 12-bit)
	5m (4K@60Hz, 4:2:0, 8-bit)
	3m (4K@60Hz, 4:4:4, 8-bit)
IR Frequency	30 - 50kHz (30 - 60kHz under ideal conditions)
Power Supply	5V/2.6A DC
	(US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model:
	±8kV (Air Discharge)
	±4kV (Contact Discharge)
Dimensions	231.5mm×25mm×108mm (W×H×D) [Case Only]
	213.5mm×25mm×117mm (W×H×D) [All Inclusive]
Weight	608g
Chassis Material	Metal
Silkscreen Color	Black
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)
Power Consumption	6.6W

8.2 Video Specifications

Supported PC Resolutions (Hz)		Input	Output
640×480	60, 72, 75, 85	✓	✓
800×600	56, 60, 72, 75, 85	✓	✓
1024×768	60, 70, 75, 85	✓	✓
1280×768	60, 70, 75, 85	✓	✓
1280×800	60	✓	✓
1280×1024	60	✓	✓
1360×768	60	✓	✓
1600×1200	60	✓	✓
1920×1200	60 (RB)	✓	✓

Supported TV Resolutions (Hz)		Input	Output
720×480i	59.94, 60	✓	✓
720×576i	50	✓	✓
720×480p	59.94, 60	✓	✓
720×576p	50	✓	✓
1280×720p	50, 60	✓	✓
1920×1080i	50, 60	✓	✓
1920×1080p	24, 25, 30, 50, 60	✓	✓
3840×2160p (YUV 4:2:0)	50, 59.94, 60	✓	✓
4096×2160p (YUV 4:2:0)	50, 59.94, 60	✓	✓
3840×2160p	24, 25, 30, 50, 59.94, 60	✓	✓
4096×2160p	24, 25, 30, 50, 59.94	✓	✓

9. ACRONYMS

ACRONYM	COMPLETE TERM
AC	Alternating Current
CEC	Consumer Electronics Control
DC	Direct Current
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
FHD	Full HD
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
IR	Infrared
LCPM	Linear Pulse-Code Modulation
LED	Light-Emitting Diode
OSD	On-Screen Display
UHD	Ultra HD