



CSC-V102P

4K UHD+ HDMI to HDMI Scaler
with EDID Management



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	26/02/18	Preliminary release
VS1	21/03/18	Final technical review
VS2	19/04/18	Updated section 6.3



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1. INTRODUCTION

This HDMI to HDMI scaler with EDID management is designed to convert sources between 4K and 1080p to enable greater compatibility with the native resolutions of available displays. 4K sources may be scaled to 1080p, or bypassed, and 1080p sources may be scaled to 4K, or bypassed, all while maintaining the original frame rates. Additionally, a variety of output color space options are available, including RGB, YUV (4:4:4, 8-bit) and YUV (4:2:0, 8-bit).

Advanced and robust EDID management provides detailed control over your video environment. 10 basic test patterns are also included which can be output at 16 different video resolution timings, useful for verifying the HDMI signal path in your system. The included automated pattern and timing test features provide an easy way to test the capabilities of a connected display by cycling through selected resolutions or patterns. This unit has a comprehensive OSD menu and is controllable using front panel controls.

2. APPLICATIONS

- Entertainment Rooms & Home Theaters
- Showrooms & Demo Rooms
- On-site equipment testing
- Production testing
- R&D design and testing

3. PACKAGE CONTENTS

- 1×4K UHD HDMI to HDMI Scaler
- 1×5V/2.6A DC Power Adapter
- 1×Shockproof Feet (Set of 4)
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

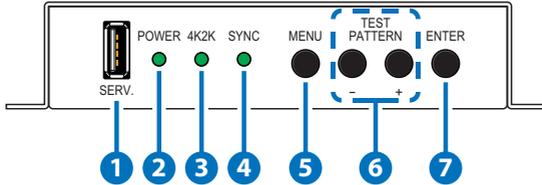
- HDMI input source equipment such as a media player, video game console or set-top box.
- HDMI receiving equipment such as an HDTV, monitor, or audio amplifier.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI with HDR, 3D & 4K@60Hz support, DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- 1 HDMI input and output
- Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video signals
- Supports Deep Color up to 16-bit at 1080p60
- Supports current 10-bit and 12-bit HDR (High Dynamic Range) formats in bypass mode
- Selectable scaling or bypass for 1080p/4K sources (all other resolutions are passed without scaling)
- Color space conversion options for 4K output
- Includes 10 test patterns for on-site display testing
- Automated multi-timing and pattern testing function
- Advanced EDID management
- Compact design
- Controllable via front-panel buttons with OSD

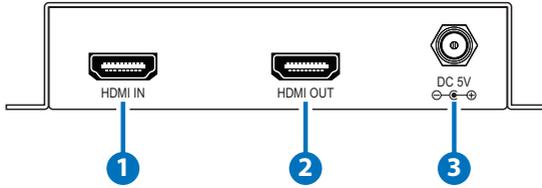
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 SERV.** This port is reserved for firmware and EDID update use only.
- 2 POWER:** This LED will illuminate to indicate the unit is on and receiving power.
- 3 4K2K:** This LED will illuminate to indicate that the HDMI input contains 4K video.
- 4 SYNC:** This LED will illuminate to indicate that a live source has been detected on the input port. When no source is detected the LED will remain off.
- 5 MENU:** Press to enter the OSD menu, or to back out from menu items.
- 6 -/+ & Test Pattern:** When the OSD menu is in use, press these buttons to move up and down or adjust selections within OSD menus.
Note: Press and hold both buttons simultaneously for 3 seconds to activate Test Pattern mode.
- 7 ENTER:** Press to confirm a selection or to go deeper into a menu item.

6.2 Rear Panel



- 1 HDMI IN:** Connect to HDMI source equipment such as a media player, game console or set-top box.
Note: If no valid HDMI input source is detected, the unit will output a blue 720p60 signal to allow continued access to the OSD menu.
- 2 HDMI OUT:** Connect to an HDMI TV, monitor or amplifier for digital video and audio output.
- 3 DC 5V:** Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power.

6.3 OSD Menu

All functions of this unit are controlled by using the OSD (On Screen Display) which is activated by pressing the Menu button on the front of the unit. Use the + (PLUS), - (MINUS), and ENTER buttons to navigate the OSD menu. Press the Menu button to back out from any menu item and then press it again to close the menu.

The individual functions of the OSD will be introduced in the following section. Items marked in **BOLD** are the factory default settings.

MAIN MENU STRUCTURE
Output
EDID
HDCP
OSD
Test Pattern
Information
Firmware Update
Load EDID
Factory Setting

OUTPUT		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Input 1080p	PASS THROUGH	Set the preferred method to handle upscaling or bypassing 1080p sources.
	Auto	
	Up 4K2K (YUV420)	
	Up 4K2K	
Input 4K2K	PASS THROUGH	Set the preferred method to handle down-scaling, color space converting, or bypassing 4K sources.
	Auto	
	Down 1080p	
	Fix RGB	
	Fix YUV420	
	YUV42x to RGB	
	Fix 8 Bits	

OUTPUT		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Up 4K2K Video Gain <i>(Only available when "Input 1080p" is not set to PASS THROUGH.)</i>	Level 1 (Weak)	Set the level of video gain processing to apply to 1080p sources when scaled to 4K.
	Level 2	
	LEVEL 3	
	Level 4	
	Level 5	
	Level 6 (Strong)	

EDID		
2ND LEVEL	3RD LEVEL	DESCRIPTION
EDID	External HDMI	Select the EDID to send to the connected HDMI input. After making a selection, you will be asked to re-confirm your selection before it takes effect.
	INTERNAL 1080P (2CH)	
	Internal 1080p (8CH)	
	Internal 4K2K (3G-2CH)	
	Internal 4K2K (3G-8CH)	
	Internal 4K2K (6G-2CH)	
	Internal 4K2K (6G-8CH)	
	User EDID 1	
	User EDID 2	
User EDID 3		

HDCP		
2ND LEVEL	3RD LEVEL	DESCRIPTION
HDCP	HDCP Support Off	Select the HDCP handling behavior of the unit.
	Refer To Source	
	REFER TO DISPLAY	

OSD		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Display Information	Off	Enable or disable the source/sink Information Display that shows when the source changes.
	ON	
OSD Timeout	Off	Set the OSD menu's timeout period. <i>Note: This does not change the display length of the OSD Information Display.</i>
	5 Sec	
	10 Sec	
	15 Sec	
	20 Sec	
	25 Sec	
	30 Sec	
	35 Sec	
	40 SEC	

TEST PATTERN		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Mode	OFF	Set the test pattern mode.
	On	
	Auto Pattern	"On" outputs the selected pattern at the set resolution. "Auto Pattern" will automatically switch between all patterns at the set resolution. "Auto Timing" will display the set pattern while automatically switching between all selected resolutions.
	Auto Timing	

TEST PATTERN		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Pattern <i>(Only available when "Mode" is set to ON.)</i>	WHITE COLOR	Select the test pattern to display.
	Red Color	
	Green Color	
	Blue Color	
	Magenta Color	
	Yellow Color	
	Cyan Color	
	Color Bar	
	Ramp	
	Toggle	
Resolution <i>(Only available when "Mode" is set to ON.)</i>	720×480p@60	Select the resolution and refresh rate to output. <i>Note: This setting is not used when "Auto Timing" is active. Please refer to the "Auto Timing Select" menu.</i>
	720×576p@50	
	1280×720p@50	
	1280×720P@60	
	1920×1080p@50	
	1920×1080p@60	
	3840×2160p@24	
	3840×2160p@25	
	3840×2160p@30	
	4096×2160p@24	
	4096×2160p@25	
	4096×2160p@30	
	3840×2160p@50	
	3840×2160p@60	
	4096×2160p@50	
	4096×2160p@60	

TEST PATTERN		
2ND LEVEL	3RD LEVEL	DESCRIPTION
HDCP <i>(Only available when "Mode" is set to ON.)</i>	OFF	Enable or disable the use of HDCP while outputting a test pattern. <i>Note: The version of HDCP used depends on the capability of the connected display.</i>
	On	
Switch Time	10 SEC	Set the length of time between pattern or resolution changes when the "Auto Pattern" or "Auto Timing" modes are active.
	20 Sec	
	30 Sec	
	40 Sec	
	50 Sec	
	1 Min	
	2 Min	
	3 Min	
	5 Min	
Auto Timing Select	720×480P@60	Select or de-select the resolutions to use when "Auto Timing" mode is active. Multiple selections are possible by changing the YES/NO setting next to each resolution in the list.
	720×576p@50	
	1280×720p@50	
	1280×720P@60	
	1920×1080p@50	
	720×480P@60	
	720×576p@50	
	1280×720p@50	
	1280×720P@60	
	1920×1080p@50	
	1920×1080P@60	
	3840×2160p@24	
	3840×2160p@25	

TEST PATTERN		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Auto Timing Select (Cont.)	3840×2160p@30	
	4096×2160p@24	
	4096×2160p@25	
	4096×2160p@30	
	3840×2160p@50	
	3840×2160p@60	
	4096×2160p@50	
	4096×2160p@60	

INFORMATION		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Resolution Input	[Informational Display]	Displays the current system information concerning resolution, HDCP, and firmware version.
Resolution Output		
HDCP Output		
Firmware Version		

FIRMWARE UPDATE		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Are You Sure?	NO	To update the firmware, place a USB stick containing the new firmware into the USB port and select "YES". After the firmware update has completed, the unit will reboot.
	Yes	

LOAD EDID		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Are You Sure?	NO	Allows updating the currently selected USER EDID. (Refer to Section 6.4.)
	Yes	

FACTORY SETTING		
2ND LEVEL	3RD LEVEL	DESCRIPTION
Are You Sure?	NO	Selecting "Yes" will return the unit to its factory default settings.
	Yes	

6.4 EDID Management

• EDID Selection

The current EDID may be changed by entering the EDID menu in the OSD and selecting and changing to a new EDID. After selecting a new EDID, the unit will ask for confirmation to enact the change. There are 6 pre-defined Internal EDIDs, an External EDID which passes the EDID from the connected display, and 3 User EDIDs which are updatable.

The 6 Internal EDIDs are:

EDID	Video Max Definition	Audio Max Definition
Internal 1080p 2CH	1080p@60Hz	LPCM 2.0
Internal 1080p 8CH	1080p@60Hz	LPCM 7.1 & Bitstream
Internal 4K2K (3G-2CH)	4K@30Hz	LPCM 2.0
Internal 4K2K (3G-8CH)	4K@30Hz	LPCM 7.1 & Bitstream
Internal 4K2K (6G-2CH)	4K@60Hz, 4:4:4, 8-bit	LPCM 2.0
Internal 4K2K (6G-8CH)	4K@60Hz, 4:4:4, 8-bit	LPCM 7.1 & Bitstream

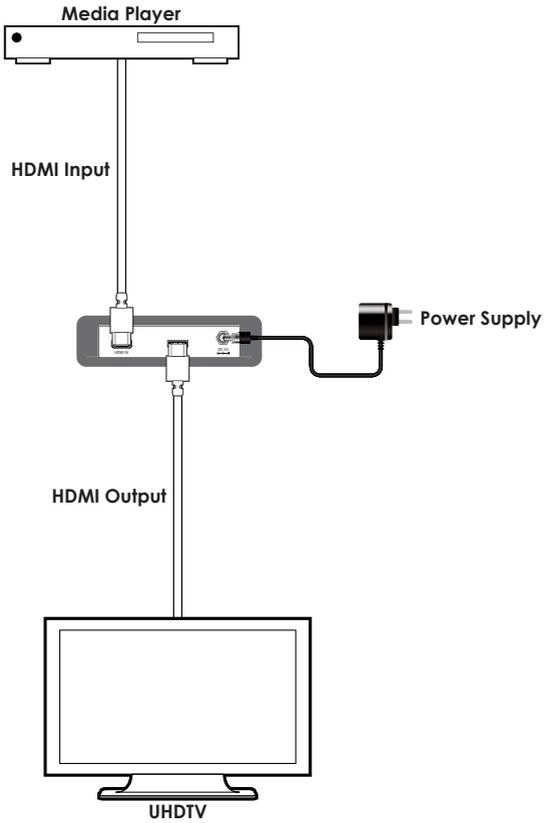
• User EDIDs

Each User EDID may be replaced by uploading a new EDID file from a USB thumb drive plugged into the USB slot on the unit.

- (1) Load EDID:** Previously saved EDID files (*.bin format) can be uploaded into the unit by inserting a USB thumb drive containing the new EDID file in the root directory, selecting "Load EDID" from the User OSD menu, selecting "YES" from the confirmation prompt, and then pressing the ENTER button. If the EDID was copied successfully the OSD will display a "Copy OK" message
- (2) Factory Setting:** To return the User EDIDs to their default value, please perform a factory reset on the unit.

Note: The filename of the EDID file determines which User EDID is updated. "UserEDID_1.bin" will update User EDID 1, "UserEDID_2.bin" will update User EDID 2, and "UserEDID_3.bin" will update User EDID 3. Only one EDID should be on the USB thumb drive at a time. Updating more than one EDID simultaneously is not supported.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

HDMI Bandwidth	600MHz/18Gbps
Input Port	1×HDMI
Output Port	1×HDMI
Control Interface	1×USB (Type-A)
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	108mm×25mm×75mm (W×H×D) [Case Only] 128mm×29mm×75mm (W×H×D) [All Inclusive]
Weight	300g
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	5.1W

8.2 Video Specifications

Resolutions/Timing (Hz)	Support	
	In	Out
640×480p@60/72/75/85	✓	✓
720×400p@70/85	✓	✓
720×480i@59/60	✓	✓
720×480p@59/60	✓	✓
720×576i@50	✓	✓
720×576p@50	✓	✓
800×600p@56/60/72/75/85	✓	✓
848×480p@60	✓	✓
1024×768p@60/70/75/85	✓	✓
1152×864p@70/75/85	✓	✓
1280×720p@23/24/25/29/30/50/59/60	✓	✓
1280×768p@60/60 (RB)/75/85	✓	✓
1280×800p@60/60 (RB)/75/85	✓	✓
1280×960p@60/85	✓	✓
1280×1024p@60/75/85	✓	✓
1360×768p@60	✓	✓
1366×768p@60/60 (RB)	✓	✓
1400×1050p@60/60 (RB)	✓	✓
1440×900p@60/60 (RB)/75	✓	✓
1600×900p@60 (RB)	✓	✓
1600×1200p@50/60/65/70/75/85	✓	✓
1680×1050p@60/60 (RB)	✓	✓
1920×1080p@23/24/25/29/30/50/59/60	✓	✓
1920×1080i@50/59/60	✓	✓
1920×1200p@60 (RB)	✓	✓

Resolutions/Timing (Hz)	Support	
	In	Out
2560×1600p@60 (RB)	✓	✓
2048×1080p@23/24/25/29/30/50/59/60	✓	✓
3840×2160p@23/24/25/29/30 (4:2:2)	✓	✓
3840×2160p@50/59/60 (4:2:0)	✓	✓
3840×2160p@23/24/25/29/30/50/59/60 (4:4:4)	✓	✓
4096×2160p@23/24/25/29/30 (4:2:2)	✓	✓
4096×2160p@50/59/60 (4:2:0)	✓	✓
4096×2160p@23/24/25/29/30/50/59/60 (4:4:4)	✓	✓

9. ACRONYMS

ACRONYM	COMPLETE TERM
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
OSD	On-Screen Display
UHD	Ultra-High-Definition
USB	Universal Serial Bus



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