CSC-V101P

4K UHD+ HDMI/VGA to HDMI Scaler

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

Operation Manual

DISCLAIMERS

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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 (DD/MM/YY)	SUMMARY OF CHANGE
RDV1	08/11/16	Preliminary release
VS1	25/07/17	Updated text/diagrams

CONTENTS

1. INTRODUCTION

This HDMI/PC to HDMI Scaler is designed to scale and convert HDMI, PC or Component video sources to an HDMI output with optional analog audio insertion. Scaled output resolutions from VGA (640×480@60Hz) all the way up to 4K@60Hz (4:4:4, 8-bit) are available. HD component video (YUV) is supported with the use of a 3-RCA to 15-pin adapter via the VGA input. If desired, external audio can be inserted into the HDMI output from the analog stereo 3.5mm input associated with each input. This unit has a comprehensive OSD menu which allows the user to select from a variety of output resolutions as well as to adjust the video settings to provide the best picture quality.

2. APPLICATIONS

- Presenter device display in classrooms and lecture halls
- PC/Laptop presentation switching in boardrooms
- Using classic media players with 4K HDMI displays

3. PACKAGE CONTENTS

- 1×HDMI/PC to HDMI Scaler
- 1×5V/3A DC Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

- HDMI source equipment such as media players, video game consoles or set-top boxes.
- VGA source equipment such as PCs, laptops or set-top boxes.
- HDMI receiving equipment such as HDTVs, monitors or audio amplifiers.

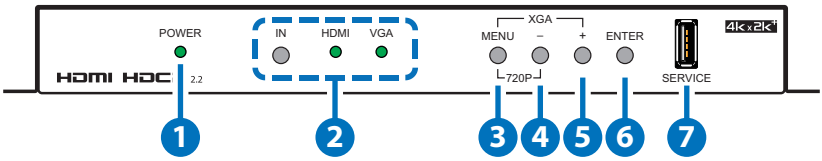
Notes: 4K UHD sources with HDR or equivalently high-bandwidth signals require an appropriate compatible display and HDMI cables in order to achieve the best image quality. The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI with 18Gbps (600MHz) 4K UHD support
- DVI 1.0 compatible with the use of an HDMI-DVI adaptor
- HDCP 1.4 and 2.2 compliant
- 1 HDMI and 1 VGA input port, each with associated 3.5mm analog stereo ports
- HD component video (YUV) is supported with the use of a 3-RCA to 15-pin adapter via the VGA input
- 1 HDMI output
- Advanced 4K upscaling and downscaling engine
- Supports digital PC and HD resolutions up to 3940×2160@60Hz (4:4:4, 8-bit) & 4096×2160@60Hz (4:4:4, 8-bit)
- Supports analog PC input resolutions from VGA to WUXGA (RB) and analog HD input resolutions from 480i to 1080p60
- Supports Deep Color up to 1080p60, 48-bit
- Supports pass-through of LPCM 2.0/5.1/7.1, Bitstream and HD Bitstream audio formats
- Analog stereo audio insertion support via 3.5mm mini-jack ports
- Integrated EDID management
- Optional automatic input selection on source loss
- Output picture adjustments include: contrast, brightness, hue, saturation, sharpness, noise reduction, RGB levels and aspect ratio
- Controllable via front panel buttons with OSD

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel

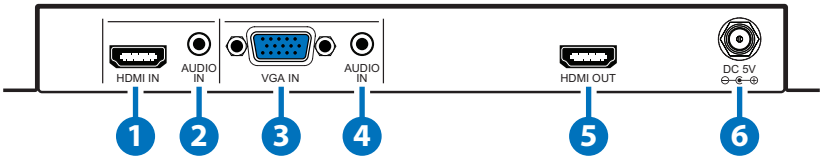


1. **POWER LED:** This LED will illuminate to indicate the unit is on and receiving power.
2. **IN & LEDs:** Press this button to switch between the HDMI and VGA inputs. The LED will illuminate to indicate which source is currently selected.
3. **MENU:** Press to enter the OSD menu, or to back out from menu items.

   Note: Pressing "MENU" and "+" together will reset the output resolution to XGA (1024×768@60Hz). Pressing "Menu" and "-" together will reset the output resolution to 720p@60Hz.
4. **- (Minus):** Press to move down or adjust selections within OSD menus.

   Note: When not in the OSD press "-" to activate the "Auto Adjust" function (VGA sources only).
5. **+ (Plus):** Press to move up or adjust selections within OSD menus.
6. **ENTER:** Press to confirm a selection within the OSD or to go deeper into a menu item.
7. **SERVICE:** This slot is reserved for firmware update use only.

6.2 Rear Panel



1. **HDMI IN:** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI sources are supported with the use of an HDMI to DVI adapter.
2. **AUDIO IN:** Connect to the stereo analog output of the device connected to the HDMI input port if necessary.
3. **VGA IN:** Connect to VGA source equipment such as a PC or laptop. YUV sources, such as DVD players, are also supported with the use of a 15-pin to 3-RCA adapter.
4. **AUDIO IN:** Connect to the stereo analog output of the device connected to the VGA input port.
5. **HDMI OUT:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.
6. **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

6.3.1 Unit's OSD Menu

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
PICTURE	CONTRAST	0~100 **(50)**	
	BRIGHTNESS	0~100 **(50)**	
	EXIT		
FINETUNE	HDMI/YPbPr INPUT	HUE	0~100 **(50)**
		SATURATION	0~100 **(50)**
		SHARPNESS	0~100 **(0)**
		NR	**OFF**
			AUTO
			LOW
			MIDDLE
			HIGH
	PC INPUT	PHASE	0~200
		CLOCK	0~200
		H-POSITION	0~200
		V-POSITION	0~200
	EXIT		
COLOR	RED	0~100 **(50)**	
	GREEN	0~100 **(50)**	
	BLUE	0~100 **(50)**	
	EXIT		
OUTPUT	SOURCE	PC/YPbPr	
		HDMI	
	RESOLUTION	640×480@60	
		800×600@60	
		1024×768@60	
		1280×768@60	
		1360×768@60	
		1280×720@60	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
OUTPUT (cont.)	RESOLUTION	1280×800@60	
		1280×1024@60	
		1440×900@60	
		1400×1050@60	
		1680×1050@60	
		1600×1200@60	
		1920×1080@60	
		480P@60	
		576P@50	
		720P@50	
		720P@60	
		1080P@24	
		1080P@25	
		1080P@30	
		1080P@50	
		1080P@60	
		4K2K@24	
		4K2K@25	
		4K2K@30	
		4K2K@50	
		4K2K@60	
		4K2K@50 (4:2:0)	
		4K2K@60 (4:2:0)	
		NATIVE	
	FORCE UHD	**SCALER**	
	BYPASS	BYPASS	
	SIZE	OVERSCAN	
		FULL	
		BEST FIT	
		PAN SCAN	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
OUTPUT (cont.)	SIZE	LETTER BOX	
		UNDER 2	
		UNDER 1	
	MIRROR	**OFF**	
		H	
		V	
		HV	
	EXIT		
AUDIO	HDMI INPUT	**AUTOMATIC**	
		EMBEDDED	
		ANALOG	
	EXIT		
OSD	H-POSITION	0~100 **(50)**	
	V-POSITION	0~100 **(50)**	
	TIMER	**OFF**	
		5~60S	
	BACKGROUND	0~100 **(100)**	
	DISPLAY	OFF	
		ON	
		5S	
		10S	
	EXIT		
EDID MANAGE	EDID COPY	**DEF. 1080P**	
		DEF. 4K2K (6G)	
		DEF. 4K2K (420)	
		DEF. 4K2K (3G)	
		OUTPUT	
	EXIT		
ADVANCED	AUTO SYNC OFF	**OFF**	
		FAST	

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
ADVANCED (cont.)	AUTO SYNC OFF	SLOW	
	AUTO SCAN	**OFF**	
		ON	
	AUTO ADJUST	**OFF**	
		ON	
	HDMI HDCP	HDCP SUPPORT OFF	
		REFER TO SOURCE	
		REFER TO DISPLAY	
	EXIT		
INFORMATION	SOURCE		
	INPUT		
	OUTPUT		
	VERSION		
	EXIT		
FACTORY	RESET		
	EXIT		

Notes:

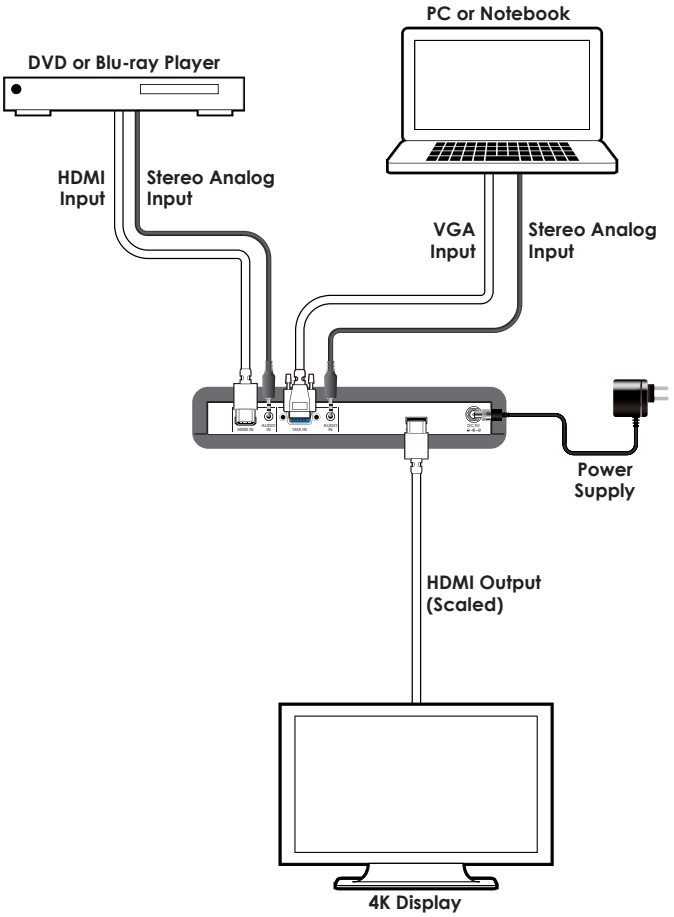
- *Default settings are marked in a **Bold** font.*
- *The "EDID COPY" and "HDMI HDCP" functions are only available when the HDMI input is selected.*
- *The "PHASE", "CLOCK", "H-POSITION", and "V-POSITION" functions are only available with VGA sources.*
- *The "PICTURE", "FINETUNE", "COLOR", "SIZE"and "MIRROR" functions are not available in Bypass mode.*

6.3.2 Conversion Rules

Input Resolution	Output Resolution	SCALER		BYPASS	
		Bypass Path	Scaler Path	Bypass Path	Scaler Path
Non-4K Timing	Any Timing		✓		✓
4K but not 24Hz	4K@24Hz		✓	N/A	N/A
4K but not 25Hz	4K@25Hz		✓	N/A	N/A
4K but not 30Hz	4K@30Hz		✓	N/A	N/A
4K but not 50Hz	4K@50Hz		✓	N/A	N/A
4K but not 60Hz	4K@60Hz		✓	N/A	N/A
4K but not 50Hz	4K@50Hz (4:2:0)		✓	N/A	N/A
4K but not 60Hz	4K@60Hz (4:2:0)		✓	N/A	N/A
4K@50Hz (4:2:0)	4K@50Hz	✓*		N/A	N/A
4K@60Hz (4:2:0)	4K@60Hz	✓*		N/A	N/A
4K@50Hz	4K@50Hz (4:2:0)	✓*		N/A	N/A
4K@60Hz	4K@60Hz (4:2:0)	✓*		N/A	N/A
4K@24Hz	4K@24Hz	✓		✓	
4K@25Hz	4K@25Hz	✓		✓	
4K@30Hz	4K@30Hz	✓		✓	
4K@50Hz	4K@50Hz	✓		✓	
4K@60Hz	4K@60Hz	✓		✓	
4K@50Hz (4:2:0)	4K@50Hz (4:2:0)	✓		✓	
4K@60Hz (4:2:0)	4K@60Hz (4:2:0)	✓		✓	

* = Only color subsampling conversion is performed.

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	600MHz/18Gbps
Input Ports	1×HDMI 1×VGA 2×3.5mm (Stereo Audio)
Output Ports	1×HDMI
Supported Resolutions	480i@60Hz - 4K@60Hz (4:4:4, 8-bit) VGA@60Hz - WUXGA@60Hz (RB)
HDMI Cable Length	10m (1080p@60Hz, 12-bit) 2m (4K@60Hz, 4:4:4, 8-bit)
Power Supply	5V/3A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±12kV (Air Discharge) ±8kV (Contact Discharge)
Dimensions	231.5mm×25mm×108mm (W×H×D) [Case Only] 231.5mm×25mm×117mm (W×H×D) [All Inclusive]
Weight	652g
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	6.5W

8.2 Video Specifications

Supported PC Resolutions (Hz)	HDMI Input	VGA Input	HDMI Output
640×480@60/72/75/85	✓	✓	60Hz only
800×600@56/60/72/75/85	✓	✓	60Hz only
1024×768@60/70/75/85	✓	✓	60Hz only
1280×768@60			✓
1360×768@60			✓
1280×720@60			✓
1280×800@60	✓	✓	✓
1280×1024@60/75/85	✓	✓	60Hz only
1440×900@60			✓
1400×1050@60			✓
1680×1050@60	✓	✓	✓
1600×1200@60	✓	✓	✓
1920×1080@60			✓
1920×1200@60 (RB)	✓	✓	✓

Supported TV Resolutions (Hz)	HDMI Input	YPbPr Input	HDMI Output
480i/576i	✓	✓	
480p/576p	✓	✓	✓
720p@50/60	✓	✓	✓
1080i@50/60	✓	✓	
1080p@50/60	✓	✓	✓
3840×2160p@24/25/30	✓		✓
3840×2160p@50/60	✓		✓
4096×2160p@24/25/30	✓		Bypassed
4096×2160p@50/60	✓		Bypassed

8.3 Audio Specifications

Input	Output				THD+N	Frequence Response	SNR	Crosstalk
Level/Freq.	Terminal	Channel	Sample Rate	Level				
HDMI	HDMI	L	48kHz	0 ~ -1dB	< 0.01	±1dB	> 80dB	< -80dB
0dBFS/1kHz		R		0 ~ -1dB	< 0.01		> 80dB	< -80dB
DVI	HDMI	L	N/A	2Vrms±0.2	< 0.1	±1dB	> 70dB	< -60dB
2Vrms/1kHz		R		2Vrms±0.2	< 0.1		> 70dB	< -60dB
VGA	HDMI	L	48kHz	0 ~ -1dB	< 0.1	±1dB	> 70dB	< -60dB
2Vrms/1kHz		R		0 ~ -1dB	< 0.1		> 70dB	< -60dB

9. ACRONYMS

ACRONYM	COMPLETE TERM
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
LPCM	Linear Pulse-Code Modulation
OSD	On-Screen Display
PC	Personal Computer
UHD	Ultra-High-Definition
USB	Universal Serial Bus
VGA	Video Graphics Array (640×480@60Hz)
WUXGA	Wide Ultra Extended Graphics Array (1920×1200@60Hz)

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