



CS-802D

mDP/DVI-DL/VGA to HDMI Scaler



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 (DD/MM/YY)	SUMMARY OF CHANGE
VR0	03/09/13	Preliminary release
VS1	09/12/14	Updated text/diagrams
VS2	30/03/17	Updated formatting



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1. INTRODUCTION

This HDMI Scaler can switch and convert Dual-link DVI, Mini DisplayPort and VGA/Component Video inputs to an HDMI output, along with their associated audio signals. With the ability to scale a wide range of resolutions, the operation of all features can be easily handled through on-panel controls, IR remote control, or by RS-232 protocol.

2. APPLICATIONS

- Scale Dual-link DVI, Mini DisplayPort and VGA/Component Video input resolutions to HDMI output resolutions
- Convert Dual-link DVI, Mini DisplayPort, VGA and Component Video signals to HDMI signal
- Commercial presentation switching scaler

3. PACKAGE CONTENTS

- 1×mDP/DVI-D/VGA to HDMI Scaler
- 1×Remote Control (CR-123)
- 1×5V/2.6A DC Power Adaptor
- 1×Operation Manual

4. SYSTEM REQUIREMENTS

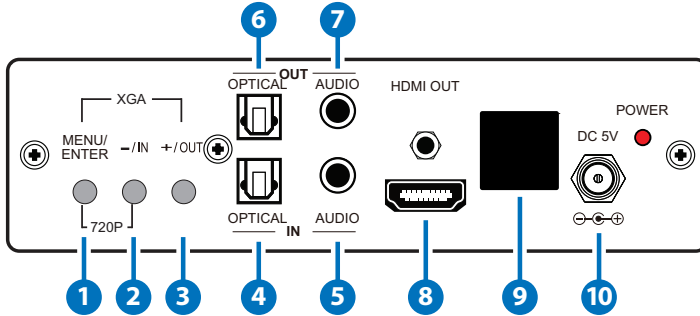
Dual-Link DVI/Mini DisplayPort/PC/YUV sources and output to an HDMI display.

5. FEATURES

- Supports Dual-link DVI and Mini DisplayPort input resolutions up to 2560×1600@60Hz (RB), PC up to 1920×1200@60/75Hz and Component Video up to 1080p@50/60Hz
- Supports digital and analog audio bi-directional conversion, embedding and de-embedding for the audio signals from individual inputs
- Supports Component Video input via D-sub 15-pin to 3 RCA phono adaptor

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 MENU/ENTER:** Press this button to ENTER the On-screen Display (OSD) menu. Press again to confirm the selection.
- 2 -/IN:** When in the OSD menu, press this button repeatedly to move down through the menu. When not in the OSD menu, press this button to quickly select the required input.
- 3 +/OUT:** When in the OSD menu, press this button repeatedly to move up through the menu. When not in the OSD menu, press this button to quickly select the required output resolution.

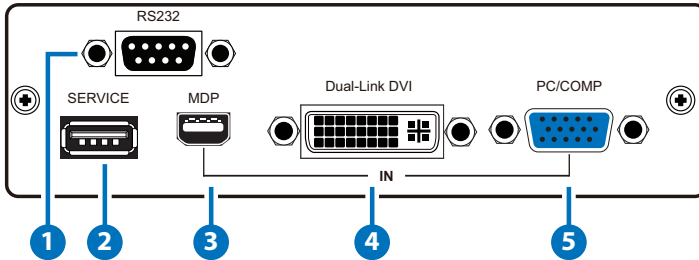
Note: Pressing “-” (MINUS) and “ENTER” simultaneously will immediately switch the output resolution of the device to 720p@60Hz. Pressing “+” (PLUS) and “ENTER” simultaneously will immediately switch the output resolution of the device to XGA.

- 4 OPTICAL IN:** Digital audio TOSLINK input. Use this input to connect to a source with an OPTICAL cable.
- 5 AUDIO IN:** Analog audio input. Use this input to connect to analog source with a 3.5mm mini-jack cable.
- 6 OPTICAL OUT:** Digital audio TOSLINK output. Use this output to connect to an Amplifier or Active Speakers to an optical digital input with an OPTICAL cable.
- 7 AUDIO OUT:** Analog audio output. Use this output to connect to Active Speakers or an Amplifier with a 3.5mm mini-jack cable.
- 8 HDMI OUT:** Connect to a HDMI equipped TV/monitor for display of the source signal.



- 9 **IR WINDOW:** Receives the IR signal from the supplied IR Remote only.
- 10 **DC 5V & POWER LED:** Connect the supplied 5V DC power supply to the unit and plug the power supply to AC wall outlet. Once the system turns on the LED will turn RED.

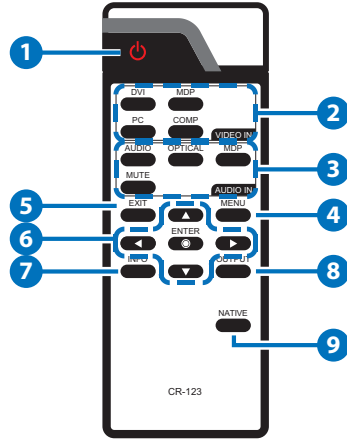
6.2 Rear Panel



- 1 **RS232:** Connect to a PC or RS-232 control system with a D-sub 9-pin cable for RS-232 control.
- 2 **SERVICE:** Manufacturer use only.
- 3 **MDP IN:** Connect to a DisplayPort source device such as a PC/ laptop with a mini-DisplayPort cable.
- 4 **Dual-Link DVI IN:** Connect to a DVI source device such as a PC/ laptop with a DVI cable.
- 5 **PC/COMP IN:** Connect to a VGA source such as a PC/laptop source equipment with a D-sub 15-pin cable or to a Component Video source with a D-sub 15-pin to 3 RCA phono adaptor for component video signal input.

6.3 Remote Control

- 1 **POWER:** Press to turn the system ON/OFF.
- 2 **VIDEO IN:** Press the required key to directly select the video source (DVI/MDP/PC/COMP).
- 3 **AUDIO IN:** Press the required key to directly select the audio source (AUDIO/OPTICAL/MDP) or to MUTE the system.
- 4 **MENU:** Press this button to ENTER the OSD menu.
- 5 **EXIT:** Press this button to EXIT the OSD menu.
- 6 **ENTER & ▲/▼/◀/▶:** Press ENTER button to confirm the selection and press the arrow keys to navigate the OSD menu.
- 7 **INFO:** Press to show the input and output resolution information.
- 8 **OUTPUT:** Press to show the output resolution table.
- 9 **NATIVE:** Press to switch to the native resolution.



6.4 OSD Menu

LEVEL 1	LEVEL 2	LEVEL 3
Input Video	PC	
	COMP	
	DVI	
	MDP	
	Exit	
Input Audio	Audio	
	Optical	
	MDP	
	Mute	
	Exit	
Output Resolution	720×480P	
	1280×720P	
	1920×1080P	
	640×480 (VGA)	
	800×600 (SVGA)	
	1024×768 (XGA)	
	1280×1024 (SXGA)	
	1600×1200 (UXGA)	
	1920×1200 (WUXGA)	
	1280×800 (WXGA)	
	By Native	
	Exit	
Misc. Setup	EDID Mode	Internal
		External
		Exit
	Info. OSD Mode	Off
		On

LEVEL 1	LEVEL 2	LEVEL 3
Misc. Setup (cont.)	Info. OSD Mode	Exit
	About CS-802D	FW Ver.
	Factory Reset	System Reset
	Exit	
Exit		

6.5 RS-232 Protocol

UNIT			REMOTE CONTROLLER	
Pin	Assignment		Pin	Assignment
1	NC		1	NC
2	TxD		2	RxD
3	RxD	▶	3	TxD
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: 19200bps

Data Bits: 8

Parity: None

Flow Control: None

Stop Bits: 1

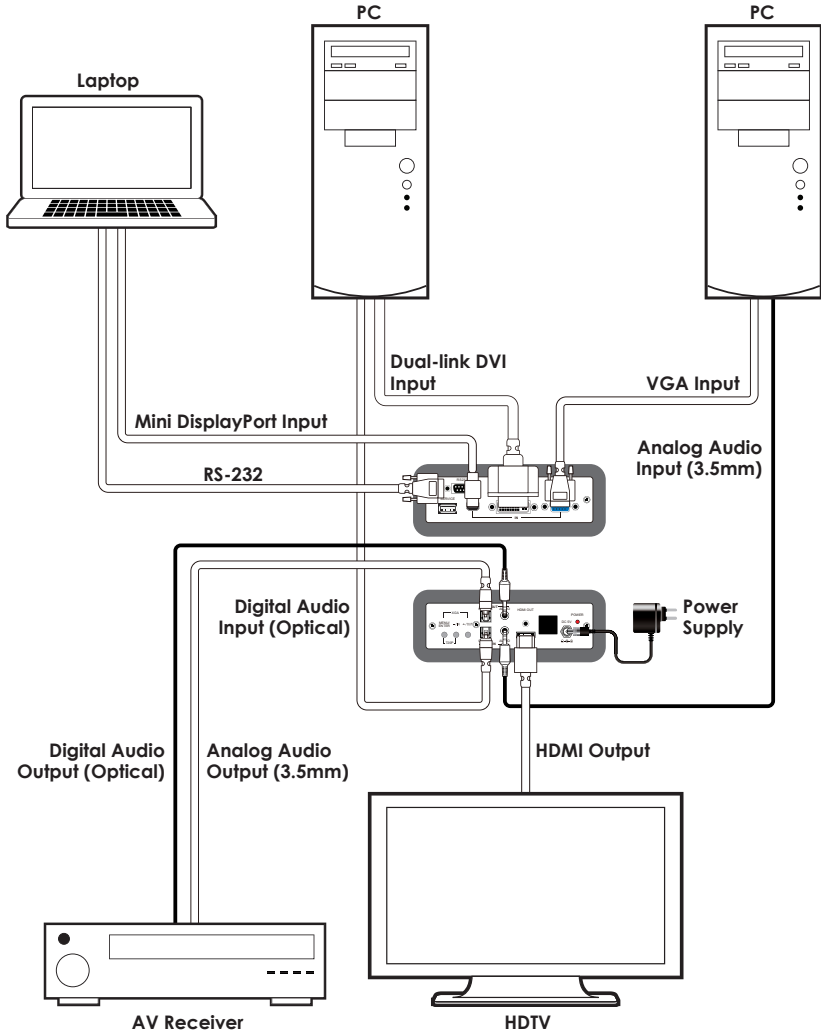
6.6 RS-232 and Telnet Commands

COMMAND	DESCRIPTION
POWER ?	Power Status
POWER ON	Power On
POWER OFF	Power OFF
VIDEO ?	Video Input Source
DVI	Video Input in DVI
MDP	Video Input in MDP
PC	Video Input in PC
COMP	Video Input in Component
AUDIO ?	Audio Input Source
AUDIO	Audio Input in AUDIO
OPTICAL	Audio Input in OPTICAL
MDPA	Audio Input in MDP
MUTE ?	MUTE On/Off
MUTE ON	MUTE On
MUTE OFF	MUTE Off
INFO ?	Info. OSD Status
INFO ON	Info. OSD On
INFO OFF	Info. OSD Off
INFO DISPLAY	Info.OSD On/Off
OUTPUT ?	Output Status
480P	Output in 480p
720P	Output in 720p
1080P	Output in 1080p
VGA	Output in VGA (640×480)
SVGA	Output in SVGA (800×600)
XGA	Output in XGA (1024×768)
SXGA	Output in SXGA (1280×1024)

COMMAND	DESCRIPTION
UXGA	Output in UXGA (1600×1200)
WUXGA	Output in WUXGA (1920×1200)
WXGA	Output in WXGA (1280×800)
NATIVE	Output by Native
EDID ?	EDID Status
EDID INT	EDID By Internal
EDID EXT	EDID By External
STATE ?	Video Input Signal Status
VERSION ?	Display Firmware Version
FEEDBACK ?	Key Feedback Status
FEEDBACK ON	Key Feedback Enable
FEEDBACK OFF	Key Feedback Disable
DEFAULT	Reset to Factory Default
ABOUT ?	About the Unit

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

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

8.1 Technical Specifications

DP Video Bandwidth	2.7Gbps & 2.7Gbps/Lane
Input Ports	1×Mini DisplayPort 1×Dual-link DVI 1×VGA (15-pin D-sub) 1×Digital Audio (Optical/TOSLINK) 1×Analog Audio (3.5mm)
Output Ports	1×HDMI 1×Optical Audio (TOSLINK) 1×Stereo Audio (3.5mm)
Control Interfaces	1×RS-232 (9-pin D-sub)
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model: ±12kV (Air Discharge) ±8kV (Contact Discharge)
Dimensions	141mm×50mm×179mm (W×H×D) [Case Only] 141mm×50mm×181mm (W×H×D) [All Inclusive]
Weight	700g
Chassis Material	Aluminum
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	8.9W

8.2 Video Specifications

Supported Resolutions (Hz)	Input				Output
	mDP	DVI-DL	PC	COMP	HDMI
640×350@85	✓	✓	✓	↘	↘
640×400@85	✓	✓	✓	↘	↘
720×400@85	✓	✓	✓	↘	↘
640×480@60/72/75/85	✓	✓	✓	↘	✓
800×600@56/60/72/75/85/120 (RB)	✓	✓	✓	↘	✓
848×480@60	✓	✓	✓	↘	↘
1024×768 @60/75/85/120 (RB)	✓	✓	✓	↘	✓
1280×720@60	✓	✓	✓	↘	↘
1280×768@60 (RB)/60/75/85/120 (RB)	✓	✓	✓	↘	↘
1280×800@60 (RB)/60/75/85/120 (RB)	✓	✓	✓	↘	✓
1280×960@60/85	✓	✓	✓	↘	↘
1280×1024@60/75/85	✓	✓	✓	↘	✓
1360×768@60/120 (RB)	✓	✓	✓	↘	↘
1366×768@60 (RB)/60	✓	✓	✓	↘	↘
1400×1050@60 (RB)/60/75	✓	✓	✓	↘	↘
1440×900@60 (RB)/60/75/85	✓	✓	✓	↘	↘
1600×900@60 (RB)	✓	✓	✓	↘	↘
1600×1200@60	✓	✓	✓	↘	✓
1680×1050@60 (RB)/60	✓	✓	✓	↘	↘
1792×1344@60/75	✓	✓	↘	↘	↘
1856×1392@60/75	↘	✓	↘	↘	↘
1920×1080@60	✓	✓	✓	↘	↘
1920×1200@60 (RB)/60	✓	✓	60 (RB)	↘	60
1920×1440@60	✓	✓	↘	↘	↘
2048×1080@50/60	✓	✓	✓	↘	↘
2048×1152@60 (RB)	✓	✓	↘	↘	↘

Supported Resolutions (Hz)	Input				Output
	mDP	DVI-DL	PC	COMP	HDMI
2560×1600@60 (RB)	✓	✓			
480i				✓	
480p				✓	✓
576i				✓	
576p				✓	
720p@24/25/30/50 /60				✓	✓
1080i@50/60				✓	
1080p@24/30/50/60				✓	✓

Note: When output timing is set to "By Native" yet the timing does not match the built-in support timing, output timing will set to default at 1280×720p automatically.

8.3 Audio Specifications

Input Terminal	Output Terminal	Output Level	THD+N	Frequency Response	SNR	Crosstalk
Digital (S/PDIF)	HDMI	0 ~ -1dB	< 0.1%	N/A	> 70dB	< -60dB
	Optical	0 ~ -1dB	< 0.1%	N/A	> 70dB	< -60dB
	Analog	2Vrms±10%	< 0.1%	2Vrms±10%	> 70dB	< -60dB
Analog (2CH)	HDMI	0 ~ -1dB	< 0.1%	2Vrms±10%	> 70dB	< -60dB
	Optical	0 ~ -1dB	< 0.1%	2Vrms±10%	> 70dB	< -60dB
	Analog	2Vrms±10%	< 0.1%	2Vrms±10%	> 70dB	< -60dB

9. ACRONYMS

ACRONYM	COMPLETE TERM
DP	DisplayPort
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
LPCM	Linear Pulse-Code Modulation
OSD	On-Screen Display
PC	Personal Computer
PCM	Pulse-Code Modulation
S/PDIF	Sony/Philips Digital Interface Format
USB	Universal Serial Bus
VGA	Video Graphics Array (640×480@60Hz)
WUXGA	Wide Ultra Extended Graphics Array (1920×1200@60Hz)



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