



# CSLUX-300I

Multi-Format to HDMI Scaler



## Operation Manual



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Version 1.1 August 2011

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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	13/11/12	Preliminary Release
VR1	18/12/12	Add D-sub to RCA adaptor
VR2	09/01/13	Add Support Timing Chart
VS3	24/06/13	Updated Format and Diagrams



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## 1. INTRODUCTION

This Multi-Format to HDMI Scaler is an advanced HDMI, PC, SDI, Composite, S-Video and Component switcher/scaler. This device can scale and switch input sources and display them to its HDMI and VGA/HD outputs simultaneously, with their associated audio signals, at a wide range of output resolutions (up to 1080p or WUXGA(RB)). It also has the added benefit of an SDI Loop Out for monitoring or extending the SDI input signal. Control is via the IR remote, RS-232, or via front panel buttons and includes an on-screen menu providing settings and system information.

## 2. APPLICATIONS

- Digital and analog signal convergence
- Convert analog video/audio signals for use with digital displays
- Integrate multiple sources and signal types to a single display in a meeting room or conference hall environment

## 3. PACKAGE CONTENTS

- Multi-Format to HDMI Scaler
- Remote Control (CR-117)
- 5 V/3 A DC Power Adaptor
- D-sub 15-pin to 3 RCA Adaptor Cable
- Operation Manual

## 4. SYSTEM REQUIREMENTS

Source equipment such as Blu-ray/DVD players or SDI camera, VGA or HDMI display and amplifier/active speakers with connection cables.

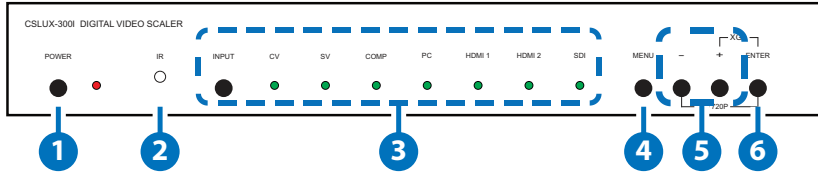
## 5. FEATURES

- Supports HDMI, Composite Video, S-Video, PC (VGA)/HD (Component) and SDI inputs
- Supports HDMI and VGA/Component (with adaptor) outputs
- Supports SDI loop through output
- Supports analog stereo, optical and coaxial digital inputs and optical digital output, analog stereo output or embedding to HDMI output
- Supports conversion of multiple video formats and audio input to HDMI or PC/HD and analog stereo outputs
- Supports EDID and HDCP
- Supports 3D de-interlacing, noise reduction and 3D comb filter
- Supports frame rate conversion
- Supports RS-232, remote handset, and front panel control
- Supports SDI Standards of SMPTE 425M (Level A and Level B), SMPTE 424M, SMPTE 292M, SMPTE 259M-C
- Supports SDI bit rates at 2.970 Gb/s, 2.970/1.001 Gb/s, 1.485 Gb/s, 1.485/1.001 Gb/s and 270 Mb/s
- Supports SDI signal input and output distances of up to 300m for SD signals, 200m for HD signals and 100m for 3G signals

*Note: The unit was tested with Belden 1694A SDI cable, results may vary with cables of a different specification.*

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel



#### 1 POWER and LED

Press this button to switch the device ON or to put the device into STANDBY mode. When the device is connected to an active power supply, the LED will illuminate and the device will switch ON automatically.

#### 2 IR Window

Receives only the IR signal from the supplied remote control.

#### 3 INPUT Button and LEDs

Press to repeatedly select the required input. An LED will illuminate to indicate the currently selected source.

#### 4 MENU

Press this button to enter into the on-screen menu (OSD).

#### 5 -/+ (Minus/Plus)

Use these buttons to navigate down and up in the on-screen menu.

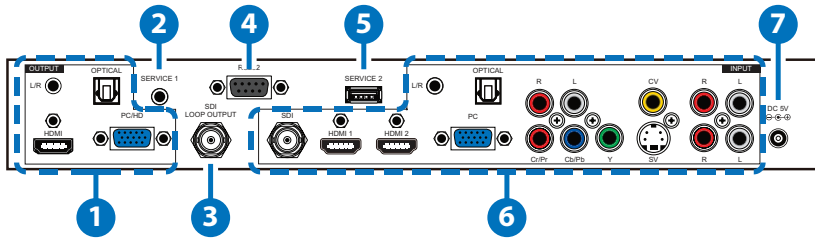
#### 6 ENTER

Press this button to confirm the selection.

*Note: Pressing '-' (MINUS) and ENTER simultaneously will immediately switch the output resolution of the device to 720p60. Pressing '+' (PLUS) and ENTER simultaneously will immediately switch the output resolution of the device to XGA.*



## 6.2 Rear Panel



### 1 OUTPUTS

**HDMI:** Connect to an HDMI display or amplifier for video and/or audio output.

**PC/HD:** Connect to a monitor/display for video output. For HD (Component) output, use the supplied D-sub 15-pin to 3 RCA adaptor cable for HD resolutions from 480p~1080p.

**OPTICAL:** Connect to an amplifier or active speakers for audio output in digital format.

**L/R:** Connect to an amplifier or active speakers for audio output in stereo format.

### 2 SERVICE 1

Reserved for manufacturer use only.

### 3 SDI LOOP OUTPUT

Connect to an SDI display for monitoring of the SDI input signal or an SDI extender for extending the SDI signal to further areas.

### 4 RS-232

Connect to a PC/Laptop to use RS-232 commands to control the device (See Section 6.5 for details on RS-232 commands).

### 5 SERVICE 2

Reserved for manufacturer use only.

## 6 INPUTS

**SDI:** Connect to an SDI camera or other SDI source for both video and audio signal conversion.

**HDMI 1:** Connect to an HDMI source such as Blu-ray/DVD player for both video and audio signal conversion.

**HDMI 2:** Connect to an HDMI source such as Blu-ray/DVD player for both video and audio signal conversion.

**PC:** Connect to a PC/Laptop source for video signal input with a D-sub 15-pin cable.

**YCbCr/YPbPr and L/R:** Connect to source equipment such as a DVD player for both video and audio signal conversion.

**SV and L/R:** Connect to an S-Video source such as a video/DVD player for both video and audio signal conversion.

**CV and L/R:** Connect to a composite video source such as video/DVD player for both video and audio signal conversion.

**OPTICAL:** Connect to a source's optical output for audio signal conversion.

**L/R:** Connect to source's L/R output with 3.5mm Mini-jack for audio signal conversion.

## 7 DC 5V

Plug the 5V DC power supply into the unit and connect the adaptor to an AC outlet.

## 6.3 Remote Control

### 1 POWER

Press this button to switch the device ON or to put the device into STANDBY mode.

### 2 INPUT

Press to repeatedly select the required input. An LED will illuminate to indicate the currently selected source.

### 3 CV/SV/COMP/PC/HDMI 1/HDMI 2/SDI

Press to directly select the required input.

### 4 EXIT

Press this button to exit the menu or the current selection in the on-screen menu.

### 5 MENU

Press this button to enter the on-screen menu.

### 6 RESET

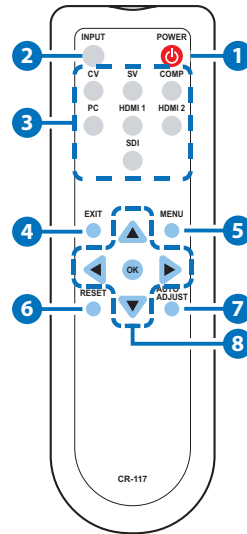
Press this button to return the device to the factory default settings.

### 7 AUTO ADJUST

Press the button to optimize the positioning of the picture (picture centering) on the screen.

### 8 ▲▼◀▶ and OK

Press OK to confirm the selection or use the directional buttons to navigate the on-screen menus.





### 6.4 RS-232 Pin Assignment

MULTI-FORMAT TO HDMI SCALER			REMOTE CONTROL	
PIN	Assignment		PIN	Assignment
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: 9600bps

Data bit: 8 bits

Parity: None

Flow Control: None

Stop Bit: 1

## 6.5 RS-232 Commands

COMMAND	DESCRIPTION
<b>S SOURCE 0~6</b>	0=SDI 1=HDMI1 2=HDMI2 3=YPbPr 4=VIDEO 5=S-VIDEO 6=PC
<b>R SOURCE</b>	Reports the numerical equivalent for SOURCE setting (as above)
<b>S OUTPUT 1~25</b>	1=640×480 2=800×600 3=1024×768 4=1280×768 5=1360×768 6=1280×720 7=1280×800 8=1280×1024 9=1440×900 10=1400×1050 11=1680×1050 12=1600×1200 13=1920×1080 16=1920×1200 17=480p 18=720p@60 19=1080p@60 20=1080i@60 22=576p 23=720p@50 24=1080p@50 25=1080i@50
<b>R OUTPUT</b>	Reports the numerical equivalent for OUTPUT setting (as above)
<b>S SIZE 0~6</b>	0=OVERSCAN 1=FULL 2=BEST FIT 3=PAN SCAN 4=LETTER BOX 5=UNDER 2 6=UNDER 1
<b>R SIZE</b>	Reports the numerical equivalent for SIZE setting (as above)
<b>S CONTRAST 0~60</b>	Setups the numerical equivalent for CONTRAST setting (as left)
<b>R CONTRAST</b>	Reports the numerical equivalent for CONTRAST setting
<b>S BRIGHTNESS 0~60</b>	Setups the numerical equivalent for BRIGHTNESS setting (as left)
<b>R BRIGHTNESS</b>	Reports the numerical equivalent for BRIGHTNESS setting

COMMAND	DESCRIPTION
<b>S HUE 0~60</b>	Setups the numerical equivalent for HUE setting (as left)
<b>R HUE</b>	Reports the numerical equivalent for HUE setting
<b>S SATURATION 0~60</b>	Setups the numerical equivalent for SATURATION setting (as left)
<b>R SATURATION</b>	Reports the numerical equivalent for SATURATION setting
<b>S SHARPNESS 0~30</b>	Setups the numerical equivalent for SHARPNESS setting (as left)
<b>R SHARPNESS</b>	Reports the numerical equivalent for SHARPNESS setting
<b>S NR 0~3</b>	0=OFF                      2=MIDDLE 1=LOW                     3=HIGH
<b>R NR</b>	Reports the numerical equivalent for the NOISE REDUCTION setting (as above)
<b>S AUDIO DELAY 0~3</b>	0=OFF                      2=110ms 1=40ms                    3=150ms
<b>R AUDIO DELAY</b>	Reports the numeric equivalent for AUDIO DELAY setting (as above)
<b>S AUDIO MUTE 0/1</b>	0=ON                      1=MUTE
<b>R AUDIO MUTE</b>	Reports the numeric equivalent for AUDIO MUTE setting (as above)
<b>S SDI AUDIO 0~3</b>	0=CH1CH2                2=CH5CH6 1=CH3CH4                3=CH7CH8
<b>R SDI AUDIO</b>	Reports the numeric equivalent for SDI AUDIO setting (as above)
<b>S AUDIO SELECT 0/1</b>	0=ANALOG                1=SPDIF
<b>R AUDIO SELECT</b>	Reports the numeric equivalent for AUDIO SELECT setting (as above)
<b>S KEY LOCK 0/1</b>	0=ENABLE                1=DISABLE
<b>R KEY LOCK</b>	Reports the numeric equivalent for KEY LOCK setting (as above)

COMMAND	DESCRIPTION
<b>FW</b>	Checks the FIRMWARE version
<b>S RESET 1</b>	Setups the numerical equivalent for RESET setting (as left)
<b>S POWER 0/1</b>	0=OFF                                  1=ON
<b>R POWER</b>	Reports the numeric equivalent for POWER setting (as above)
<b>EXIT</b>	Exit

Note:

1. Audio Delay is only supported on Analog Stereo output.
2. When the HDMI input is encoded with HDCP, no image will be output from the PC/HD output.
3. Only LPCM 2 channel digital audio is supported, please ensure that the source audio is set to LPCM 2 channel audio in order to avoid unnecessary audio noise.
4. RS-232 commands will be not executed unless followed with a carriage return and LF. Commands are case-insensitive.

## 6.6 OSD Menu

MAIN MENU	SUBMENU	3RD MENU	4TH MENU
DISPLAY	OUTPUT	640×480 60	
		800×600 60*	
		1024×768 60	
		1280×768 60	
		1360×768 60	
		1280×720 60	
		1280×800 60	
		1280×1024 60	
		1440×900 60	
		1400×1050 60	
		1680×1050 60	
		1600×1200 60	
		1920×1080 60	
		1920×1200 60	
		720×480P 60	
		1280×720P 60	
		1920×1080I 60	
		1920×1080P 60	
		720×576P 50	
		1280×720P 50	
		1920×1080I 50	
		1920×1080P 50	



MAIN MENU	SUBMENU	3RD MENU	4TH MENU
<b>DISPLAY</b>	SIZE (For VIDEO input)	OVER SCAN*	
		FULL	
		BEST FIT	
		PAN SCAN	
		LETTER BOX	
	SIZE (For VIDEO input)	UNDER 2	
		UNDER 1	
	MODE INFO	OFF	
		INFO*	
		ON	
	PC (For PC input)	AUTO SETUP	
		H_POSITION	
		V_POSITION	
		PHASE	
		CLOCK	
		WXGA/XGA	XGA*
			WXGA
		RESET	

MAIN MENU	SUBMENU	3RD MENU	4TH MENU
COLOR	COLOR	R	
		G	
		B	
		R OFFSET	
		G OFFSET	
		B OFFSET	
	CONTRAST	0~60	
	BRIGHTNESS	0~60	
	HUE	0~60	
	SATURATION	0~60	
	SHARPNESS	0~30	
	NR	OFF*	
		LOW	
		MIDDLE	
		HIGH	

MAIN MENU	SUBMENU	3RD MENU	4TH MENU
AUDIO	VOLUME	0~100	
	DELAY	OFF*	
		40ms	
		110ms	
		150ms	
	SOUND	ON*	
		MUTE	
	SDI AUDIO	CH1 - CH2*	
		CH3 - CH4	
		CH5 - CH6	
		CH7 - CH8	
	AUDIO SELECT (For AV/SV/YPbPr/ VGA input)	ANALOG*	
		S/PDIF	
SETUP	FACTORY RESET		
	KEY LOCK	OFF*	
		ON	
	POWER SAVE	OFF*	
		ON	
INFORMATION	INPUT		
	OUTPUT		
	REVISION		

Note: Items with Asterisk (\*) are the Factory default settings.

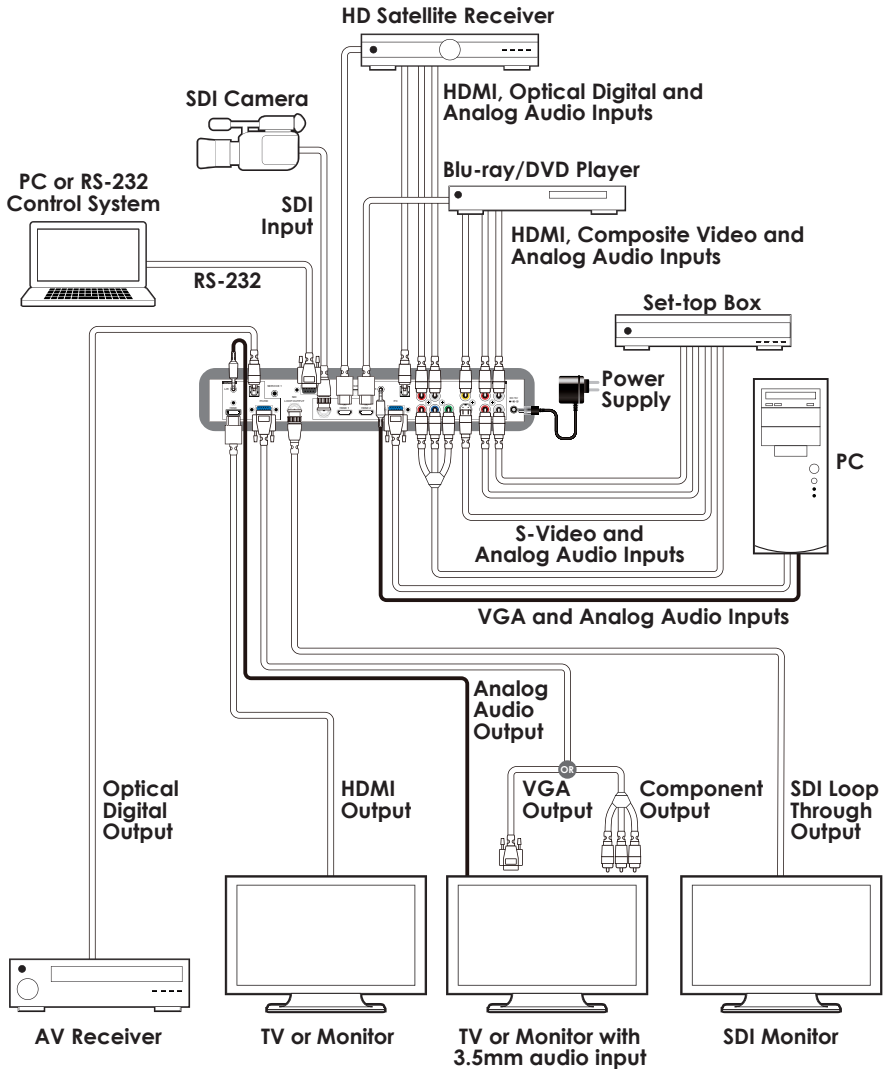
## 6.7 Input Resolution Support

INPUT RESOLUTION	CV/SV	COMP	PC	HDMI
NTSC/PAL	✓	-	-	-
480i/576i	-	✓	-	✓
480p/576p	-	✓	-	✓
720p@50/60 Hz	-	✓	-	✓
1080i@50/60 Hz	-	✓	-	✓
1080p@50/60 Hz	-	✓	-	✓
VGA@60/72/75 Hz	-	-	✓	✓
SVGA@56/60/72/75 Hz	-	-	✓	✓
XGA@60/70/75 Hz	-	-	✓	✓
SXGA@60/75 Hz	-	-	✓	✓
UXGA@60 Hz	-	-	✓	✓
1280×800@60 Hz	-	-	✓	✓
1680×1050RB@60 Hz	-	-	✓	✓
1920×1080@60 Hz	-	-	✓	✓

## 6.8 Output Resolution Support

OUTPUT RESOLUTION	PC/HD	HDMI
480p/576p	HD	✓
720p@50/60 Hz	HD	✓
1080i@50/60 Hz	HD	✓
1080p@50/60 Hz	HD	✓
VGA@60 Hz	✓	✓
SVGA@60 Hz	✓	✓
XGA@60 Hz	✓	✓
SXGA@60 Hz	✓	✓
UXGA@60 Hz	✓	✓
1280×768@60 Hz	✓	✓
1280×800@60 Hz	✓	✓
1360×768@60 Hz	✓	✓
1400×1050@60 Hz	✓	✓
1440×900@60 Hz	✓	✓
1680×1050@60 Hz	✓	✓
1920×1200@60 Hz	✓	✓

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

<b>Input Ports</b>	1×SDI, 2×HDMI, 1×VGA, 1×Composite Video, 1×S-Video, 1×Component Video, 3×Analog Stereo (L/R), 1×Optical, 1×3.5mm Mini-jack, 1×RS-232, 1×USB (Service Only), 1×3.5mm Mini-jack (Service Only)
<b>Output Ports</b>	1× SDI (Loop Through Output), 1×HDMI, 1×VGA, 1×Optical, 1×3.5mm Mini-jack
<b>Input Resolutions Support</b>	Up to 1080p & UXGA
<b>Output Resolutions Support</b>	Up to 1080p & WUXGA (RB)
<b>Power Supply</b>	5 V/3 A DC (US/EU standards, CE/FCC/UL certified)
<b>Dimensions</b>	320 mm (W)×182 mm (D)×44 mm (H)
<b>Weight</b>	1,600 g
<b>Chassis Material</b>	Metal
<b>Color</b>	Black
<b>Operating Temperature</b>	0 °C~40 °C/32 °F~104 °F
<b>Storage Temperature</b>	-20 °C~60 °C/-4 °F~140 °F
<b>Relative Humidity</b>	20~90 % RH (non-condensing)
<b>Power Consumption</b>	10.5 W

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>COMP</b>	Component Video
<b>CV</b>	Composite Video
<b>DVI</b>	Digital Visual Interface
<b>EDID</b>	Extended Display Identification Data
<b>HDCP</b>	High-Bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>IR</b>	Infrared
<b>NR</b>	Noise Reduction
<b>NTSC</b>	National Television System Committee
<b>OSD</b>	On-screen Display (Menu)
<b>PAL</b>	Phase Alternating Line
<b>RGB</b>	Red Green Blue
<b>SDI</b>	Serial Digital Interface
<b>SV</b>	S-Video
<b>USB</b>	Universal Serial Bus
<b>UXGA</b>	Ultra Extended Graphics Array
<b>VGA</b>	Video Graphics Array
<b>XGA</b>	Extended Graphics Array
<b>WUXGA</b>	Wide Ultra Extended Graphics Array











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