CSC-6015
4K UHD+ HDMI to HDMI Scaler
Quad-Set

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

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
RDV1	11/12/17	Preliminary release
VS1	22/12/17	Final technical review
VS2	09/04/18	A minor change to the package contents

CONTENTS

1. INTRODUCTION

This HDMI to HDMI Scaler Quad-Set is designed to convert and scale a wide range of HDMI sources for output to an equally wide array of HDMI resolutions with 4 independent scaling units in a single case. Input sources are supported at resolutions up to and including 4K@60Hz (4:4:4, 8-bit). Supported output resolutions range from SVGA to 3840×2160@60Hz (4:4:4, 8-bit). The efficient and compact design ensures that the user can set up each scaling unit quickly and get high quality pictures on each display. Additionally, this unit provides analog stereo breakout audio (LPCM 2.0 sources only) to support the use of external powered speakers. A perfect tool for your HD and UHD signal conversion needs. Each scaling unit is controlled independently via front panel buttons with an On-Screen Display (OSD).

2. APPLICATIONS

• Displaying HD video on UHD displays

• Displaying UHD video on HD displays

• Displaying HDMI sources on DVI displays with analog audio breakout to external speakers

• Video signal quality and level management

3. PACKAGE CONTENTS

• 1×HDMI to HDMI Scaler Quad-Set

• 1×5V/6A DC Power Adaptor

• 1×Power Cord

• 1×Rack Mount Ears (Set of 2)

• 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 inputs and outputs with 18Gbps (600MHz) 4K UHD support
- DVI 1.0 compliant with the use of an HDMI-DVI adaptor
- HDCP 1.4 and 2.2 compliant
- 4 independent scaling units within a single rack-mountable case
- Supports HD resolutions up to 3840×2160@60 Hz (4:4:4, 8-bit) & 4096×2160@60 Hz (4:4:4, 8-bit)
- Supports 16-bit Deep Color up to 1080p@60Hz
- Supports 12-bit Deep Color up to 4K@60Hz (YUV 4:2:0) & 4K@30Hz (4:4:4)
- Supports pass-through of LPCM 7.1, Bitstream and HD Bitstream audio formats over HDMI
- Analog stereo audio breakout (LPCM 2.0 sources only)
- Provides EDID management via EDID bypass, 6 built-in EDIDs or 1 user modifiable EDID
- Supports up and down scaling of a wide variety of HDMI source resolutions, from 480p to 4K@60Hz.
- Each scaling unit is controlled independently via front panel buttons with an On-Screen Display (OSD)

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
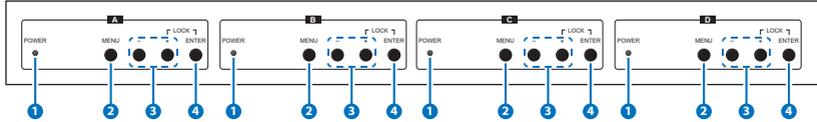
Note: The functionality of scaling units A, B, C, and D is identical, however each unit is controlled, and operates, independently.

1 POWER LED: This LED will illuminate when the unit is receiving power. When a valid HDMI source is detected the LED will be green, if there is no valid HDMI source, the LED will be red.

2 MENU: Press to enter the OSD menu, or to back out from menu items.

Note: Press and hold the "MENU" button for 3 seconds while connecting the power supply to reset all settings to the factory defaults. Pressing "MENU" and "−" together will reset the output resolution to 720p@60Hz. Pressing "MENU" and "+" together will reset the output resolution to XGA (1024×768@60Hz).

3 − & +: Press to move up and down or adjust selections within OSD menus.

4 ENTER: Press to confirm a selection within the OSD or to go deeper into a menu item.

LOCK: Pressing and holding the "ENTER" and "+" buttons for 3 seconds activates the front panel Lock Mode. The power LED will blink red multiple times to indicate that Lock Mode has been activated. To deactivate the front panel Lock Mode, press and hold the "ENTER" and "+" buttons again. The power LED will blink green multiple times to indicate that Lock Mode has been deactivated.

Note: When Lock Mode is active the OSD menu will be disabled, however OSD signal info will still display normally. If a button is pressed while Lock Mode is active the power LED will blink red 3 times.

6.2 Rear Panel
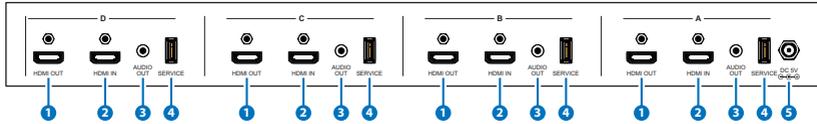
Note: The functionality of scaling units A, B, C, and D is identical, however each unit is controlled, and operates, independently.

1 HDMI OUT: Connect to HDMI TVs, monitors or amplifiers for digital video and audio output.

Note: If no valid HDMI input source is detected the unit will output blank video using the selected free run color.

2 HDMI IN: Connect to HDMI source equipment such as media players, game consoles or set-top boxes.

3 AUDIO OUT: Connect to powered speakers or an amplifier for stereo analog audio output.

Note: Supports LPCM 2.0 audio only. Bitstream formats will be muted.

4 SERVICE: Connect a USB thumb drive to this slot to upload a user EDID or to perform a firmware update.

5 DC 5V: Plug the 5V DC power adapter into this port and connect it to an AC wall outlet for power.

6.3 OSD Menu

LEVEL 1	LEVEL 2	LEVEL 3
Output Resolution	800×600@60Hz	
	1024×768@60Hz	
	1280×768@60Hz	
	1360×768@60Hz	
	1280×800@60Hz	
	1440×900@60Hz	
	1280×1024@60Hz	
	1400×1050@60Hz	
	1680×1050@60Hz	
	1600×1200@60Hz	
	1920×1200@60Hz (RB)	
	720×480p@60Hz	
	720×576p@50Hz	
	1280×720p@50Hz	
	1280×720p@60Hz	
	1920×1080i@50Hz	
	1920×1080p@50Hz	
	1920×1080i@60Hz	
	1920×1080p@60Hz	
	3840×2160p@24Hz	
	3840×2160p@25Hz	
	3840×2160p@30Hz	
	3840×2160p@50Hz (Y420)	
	3840×2160p@60Hz (Y420)	
	3840×2160p@50Hz	
	3840×2160p@60Hz	
	Bypass	

LEVEL 1	LEVEL 2	LEVEL 3
Output Color Format	Format	**Auto**
		HDMI
		DVI
	Color Space	**Bypass**
		Auto
		YUV444
		YUV422
		YUV420*
	Color Depth	Auto
		8-bit
		10-bit
		12-bit
		16-bit
Output Image Adjust	Brightness	0~100 **(27)**
	Contrast	0~100 **(67)**
	Saturation	0~100 **(50)**
	Hue	0~100 **(50)**
	Sharpness	0~100 **(60)**
	Aspect Ratio	**Full**
		16:9
		16:10
		4:3
		Auto
	Under Scan	**No**
		95
		90
		85
		80
	Default	

LEVEL 1	LEVEL 2	LEVEL 3
Output Audio Control	HDMI Audio	**Unmute**
		Mute
	Ext Audio	**Unmute**
		Mute
	Audio Information	
HDMI Information	Notify	1~60 Sec **(3 Sec)**
		Always
		Never
	Input Information	
	Output Information	
EDID Control	Mode	**Int FHD 2CH**
		Int FHD MCH
		Int UHD 2CH
		Int UHD MCH
		Int UHD⁺ 2CH
		Int UHD⁺ MCH
		External
		User
	User	Copy External
		Copy From USB
		No Change
	EDID Preview	
HDCP Control	Mode	Apple Mode
		Refer Source
		Refer Display
	HDCP Status	
OSD Setting	Auto Off	5~60 Sec **(30 Sec)**
		Never
	Horizontal	0~100% **(2%)**
	Vertical	0~100% **(3%)**

LEVEL 1	LEVEL 2	LEVEL 3
OSD Setting	Transparency	0~7 **(3)**
	Panel Size	Normal
		Large
		Auto
	Panel Color	Red
		Green
		Blue
		Gray
	Font Color	White
		Yellow
		Cyan
		Red
		Green
		Magenta
		Blue
		Black
	Free Run Color	Red
		Green
		Blue
		Black
	Default	
System Setting	VID	
	PID	
	SN	
	FW Version	
	FW Update	
	Factory Mode	

Notes:

• *Default settings are in **Bold**.*

• *YUV420 is only available for 4K@50Hz & 60Hz output.*

6.4 EDID Management

Within the EDID Control section of the OSD menu are 2 menu items, "Mode" & "User", along with a details section displaying the content of the currently selected EDID.

(1) Mode

The current EDID may be changed by selecting and changing the Mode option. There are 6 pre-defined Internal EDIDs, an External EDID which passes the EDID from the connected display, and a User EDID which is user-replaceable. To return the User EDID to its original value, please perform a factory reset on the unit.

The 6 Internal EDIDs are:

EDID	Video Max Definition	Audio Max Definition
Int FHD 2CH	1080p@60Hz	LPCM 2.0
Int FHD MCH	1080p@60Hz	LPCM 7.1 & Bitstream
Int UHD 2CH	4K@30Hz	LPCM 2.0
Int UHD MCH	4K@30Hz	LPCM 7.1 & Bitstream
Int UHD⁺ 2CH	4K@60Hz, 4:4:4, 8-bit	LPCM 2.0
Int UHD⁺ MCH	4K@60Hz, 4:4:4, 8-bit	LPCM 7.1 & Bitstream

(2) User

The User EDID may be copied from a currently connected display, or uploaded from a USB thumb drive plugged into the USB slot on the unit.

- **Copy External:** Any EDID from a connected HDMI display can be stored as a User EDID by selecting "Copy External" from the User OSD menu and pressing the ENTER button. If the EDID was copied successfully the OSD will display a "Copy OK" message.

- **Copy From USB:** 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 "Copy from USB" from the User OSD menu, and pressing the ENTER button. If the EDID was copied successfully the OSD will display a "Copy OK" message.

7. CONNECTION DIAGRAM

Set-top Box   Satellite Receiver   Set-top Box   Satellite Receiver

HDMI Input   HDMI Input   HDMI Input   HDMI Input

Power Supply

Audio/Video Zones:
• HDMI Output
• Analog Stereo Output

AV Zone D   AV Zone C   AV Zone B   AV Zone A

Audio Zone

Projectors & Powered Speakers
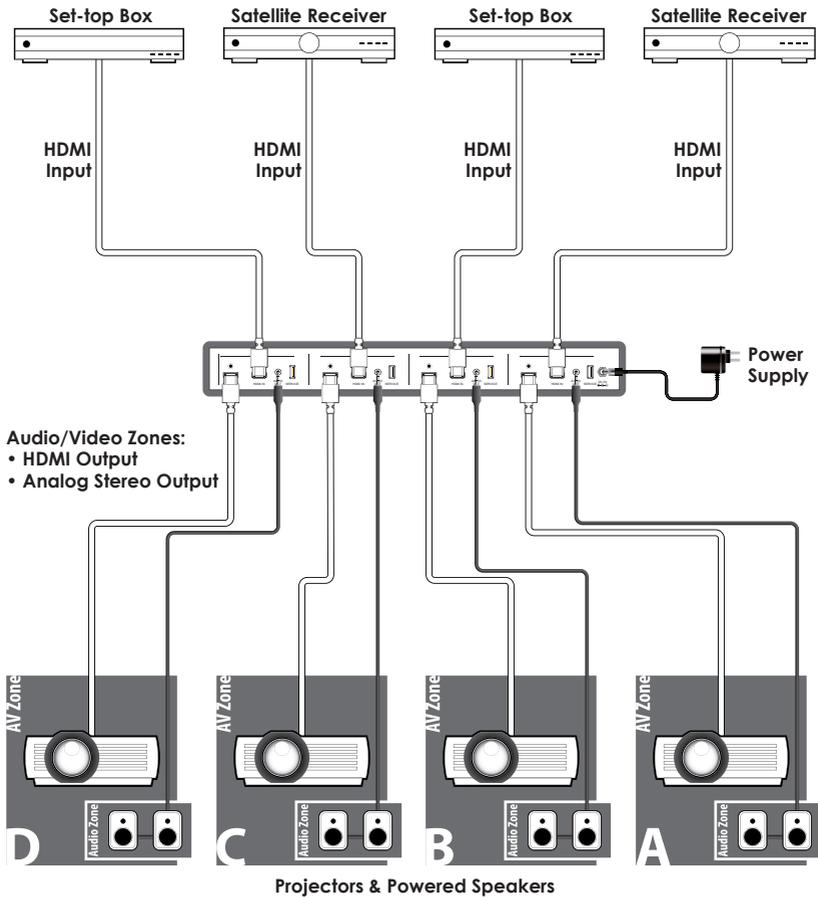
8. SPECIFICATIONS

8.1 Technical Specifications

Video Bandwidth	600MHz/18Gbps
Input Ports	4×HDMI
Output Ports	4×HDMI
	4×3.5mm (Stereo)
Control Interfaces	4×USB Type-A
HDMI Cable Length	10m (1080p@60Hz, 12-bit)
	3m (4K@60Hz, 4:4:4, 8-bit)
Power Supply	5V/6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body Model:
	±8kV (Air Discharge)
	±4kV (Contact Discharge)
Dimensions	432mm×44mm×108mm (W×H×D)
	[Case Only]
	432mm×44mm×116mm (W×H×D)
	[All Inclusive]
Weight	1,520g
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	24.7W

8.2 Video Specifications

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

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

9. ACRONYMS

ACRONYM	COMPLETE TERM
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
Gbps	Gigabits per second
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
LPCM	Linear Pulse-Code Modulation
OSD	On-Screen Display
SVGA	Super Video Graphics Array (800×600@60Hz)
UHD	Ultra-High-Definition
USB	Universal Serial Bus