



# COUT-V4HP

4-Port HDMI Output Card



**Operation Manual**

**HDMI®**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

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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.
- Please completely disconnect the power when the unit is not in use to avoid wasting electricity.

## VERSION HISTORY

REV.	DATE	SUMMARY OF CHANGE
<b>RDV1</b>	2020/03/03	Preliminary release
<b>RDV2</b>	2020/06/11	Control content moved to chassis manual



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## 1. INTRODUCTION

This 4-port HDMI Output Card provides 4 independent high-bandwidth HDMI outputs, paired with analog stereo outputs. Each output can be freely routed to from any available input on the connected modular matrix. Each HDMI port supports up to 18Gbps allowing for resolutions up to 4K@60Hz with HDR and high-bitrate digital audio. Each of the four analog stereo audio ports can output independently routed audio, or extract audio from the associated HDMI output (LPCM 2.0 sources only).

## 2. APPLICATIONS

- Residential or Commercial AV matrix installations
- Security systems
- University lecture halls
- Retail point of sale installations

## 3. PACKAGE CONTENTS

- 1× 4-Port HDMI Output Card
- 1× Operation Manual

## 4. SYSTEM REQUIREMENTS

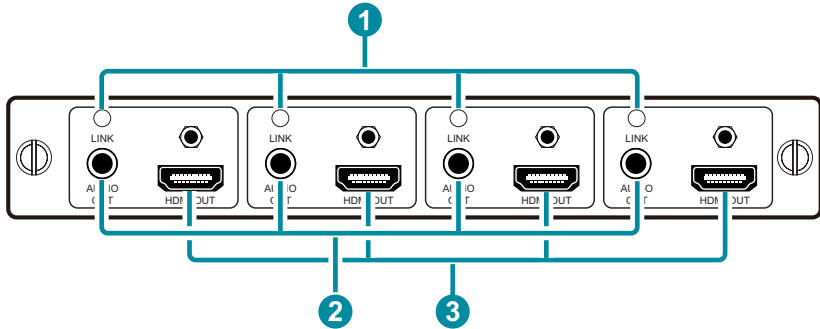
- HDMI receiving equipment such as HDTVs, monitors, or audio amplifiers
- An available Modular Matrix Chassis high-bandwidth output card slot is required

## 5. FEATURES

- HDMI 2.0 and DVI 1.0 compatible
- HDCP 2.2 and HDCP 1.x compliant
- 4 HDMI output ports paired with analog stereo output ports
- Single-link DVI compatible with the use of an HDMI to DVI adapter
- Supports up to 4K UHD<sup>+</sup> (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video output
- Supports 10-bit and 12-bit HDR (High Dynamic Range) output
- Supports 12-bit Deep Color output up to 1080p@60Hz
- Supports output of many audio formats including 8 channel LPCM, Bitstream, and HD Bitstream
- Supports stereo audio routing and extraction (LPCM 2.0 sources only)
- Per-output active signal detection LEDs
- This card's features are controlled by the modular matrix

## 6. OPERATION CONTROLS AND FUNCTIONS

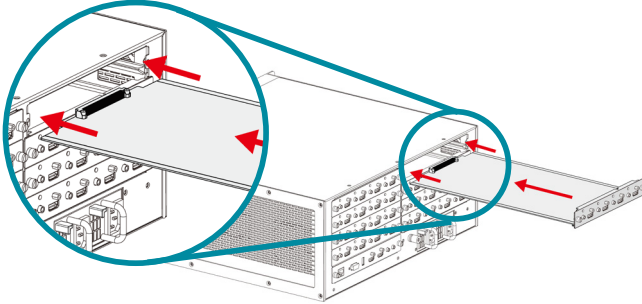
### 6.1 Front Panel



- 1 LINK LEDs:** These LEDs will illuminate to indicate when a valid sink has been detected on the associated output port and a live source has been routed to it. When no sink is detected the LED will remain off.
- 2 AUDIO OUT Ports:** Connect to powered speakers, headphones, or an amplifier for stereo analog audio output.
- 3 HDMI OUT Ports:** Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.

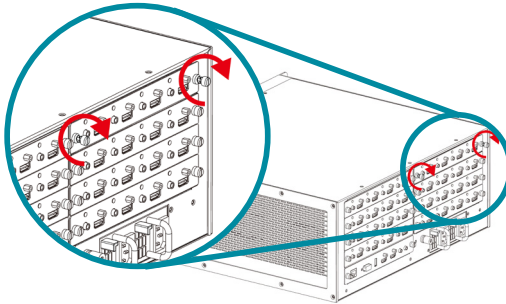
## 6.2 Card Installation

**When installing cards, the unit should be powered off completely (not in standby mode).** To install one or more cards into a standard Modular Matrix Chassis with available high-bandwidth card slots, please follow these steps:



- (1) Card Insertion:** Identify an available, and appropriate card slot for the card type. Input cards must be installed in the left hand slots and output cards must be installed in the right hand slots. Line both sides of the card up with the alignment grooves of the card slot and gently slide the card into the slot until the front panel of the card is flush with the case.

*Note: Excessive force should not be used when inserting the card.*

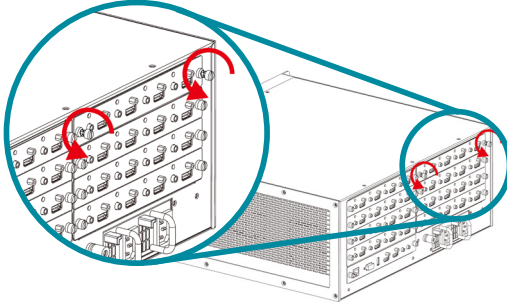


- (2) Lock Card:** Once the card has been firmly and snugly inserted into the card slot, tighten both thumbscrews by turning them clockwise. The card is now ready to be used. Once all cards have been installed, the unit may be powered on.

*Note: Be careful to not overtighten the thumbscrews as this could damage the screw threads.*

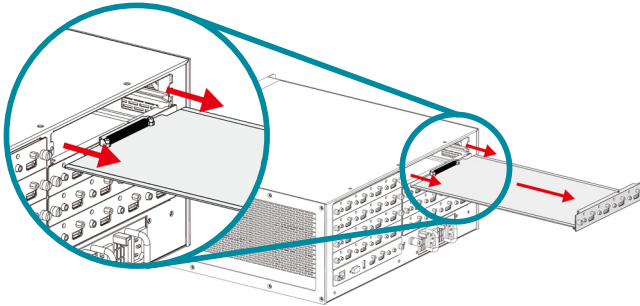
## 6.3 Card Extraction

**When extracting cards, the unit should be powered off completely (not in standby mode).** To remove one or more cards from a standard Modular Matrix Chassis, please follow these steps:



- (1) Unlock Card:** Loosen both thumbscrews by turning them counter-clockwise until they are completely free of the chassis and can be wiggled around freely.

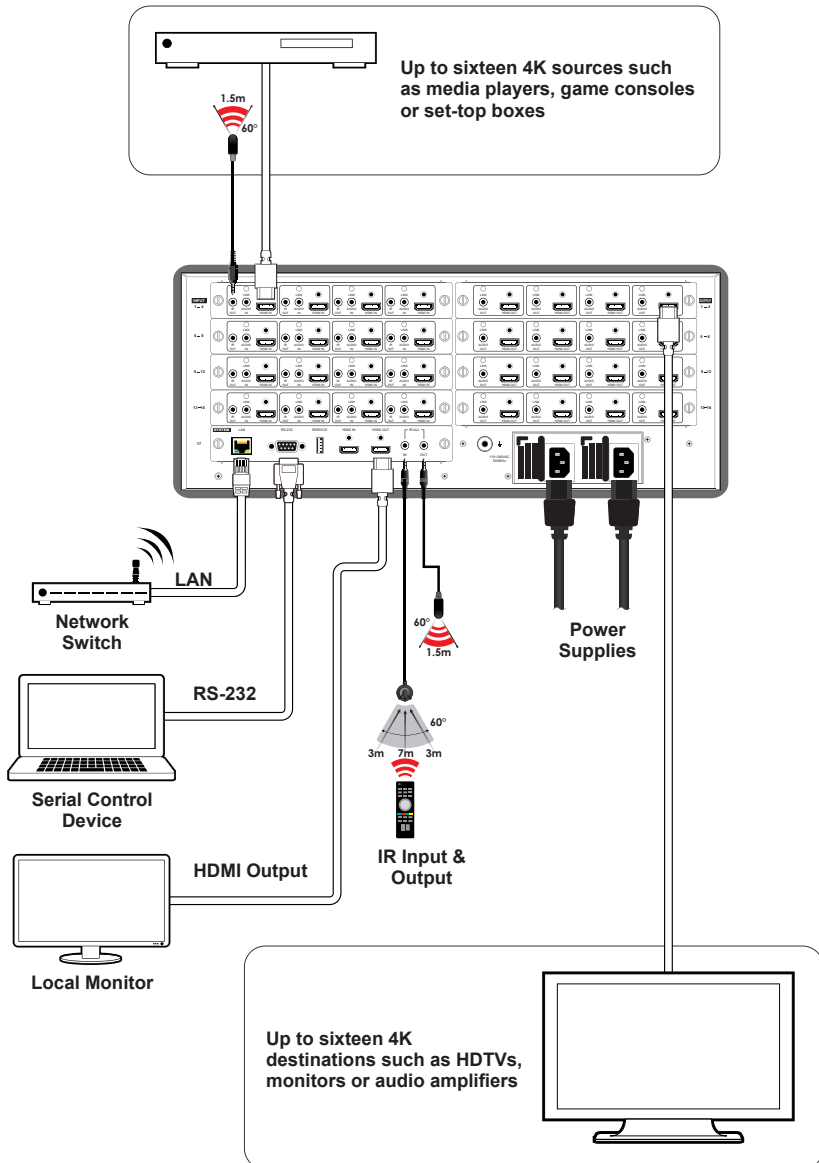
*Note: The thumbscrews are connected to the card with a retention mechanism and will not come completely free when they have been unscrewed from the chassis.*



- (2) Card Extraction:** Once the card's thumbscrews have been loosened, gently slide the card straight out of the slot using the thumbscrews as handles. Once the card has been completely removed, be sure to store it in safe, and static free, location.

*Note: Excessive force is not required to remove a card. If the card does not come out easily, re-verify that both thumbscrews have been completely unscrewed from the chassis before trying again.*

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>HDMI Bandwidth</b>	18Gbps
<b>Output Ports</b>	4×HDMI (Type-A) 4×Stereo Audio (3.5mm)
<b>Power Supply</b>	Supplied by the Matrix Chassis
<b>ESD Protection (HBM)</b>	±8kV (Air Discharge) ±4kV (Contact Discharge)
<b>Dimensions (W×H×D)</b>	187.4mm×29.1mm×344.9mm[Case Only] 197.5mm×29.1mm×364.6mm[All Inclusive]
<b>Weight</b>	458g
<b>Chassis Material</b>	Metal (Steel)
<b>Chassis 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>	19.5W

## 8.2 Video Specifications

Supported Resolutions (Hz)	Output
	HDMI
720×400p@70/85	✓
640×480p@60/72/75/85	✓
720×480i@60	✓
720×480p@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@75	✓
1280×720p@50/60	✓
1280×768p@60/75/85	✓
1280×800p@60/75/85	✓
1280×960p@60/85	✓
1280×1024p@60/75/85	✓
1360×768p@60	✓
1366×768p@60	✓
1400×1050p@60	✓
1440×900p@60/75	✓
1600×900p@60RB	✓
1600×1200p@60	✓
1680×1050p@60	✓
1920×1080i@50/60	✓
1920×1080p@24/25/30	✓
1920×1080p@50/60	✓
1920×1200p@60RB	✓

Supported Resolutions (Hz)	Output
	HDMI
2560×1440p@60RB	✓
2560×1600p@60RB	✓
2048×1080p@24/25/30	✓
2048×1080p@50/60	✓
3840×2160p@24/25/30	✓
3840×2160p@50/60 (4:2:0)	✓
3840×2160p@24, HDR10	✓
3840×2160p@50/60 (4:2:0),HDR10	✓
3840×2160p@50/60	✓
4096×2160p@24/25/30	✓
4096×2160p@50/60 (4:2:0)	✓
4096×2160p@24, HDR10	✓
4096×2160p@50/60 (4:2:0),HDR10	✓
4096×2160p@50/60	✓

## 8.3 Audio Specifications

### 8.3.1 Digital Audio

HDMI Output	
LPCM	
Max Channels	8 Channels
Sampling Rate (kHz)	32, 44.1, 48, 88.2, 96, 176.4, 192
Bitstream	
Supported Formats	Standard & High-Definition

### 8.3.2 Analog Audio

Analog Output	
Max Audio Level	2 Vrms
THD+N	<-87db@0dBFS 1kHz (A-wt)
SNR	>91dB@0dBFS
Frequency Response	< $\pm$ 0.5db@20Hz~20kHz
Crosstalk	<-75dB@10kHz
Impedance	50 $\Omega$
Type	Unbalanced

## 8.4 Cable Specifications

Cable Length	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
<b>High Speed HDMI Cable</b>				
<b>HDMI Output</b>	15m	10m	5m	3m

### Bandwidth Category Examples:

- **1080p (FHD Video)**
  - Up to 1080p@60Hz, 12-bit color
  - Data rates lower than 5.3Gbps or below 225MHz TMDS clock
- **4K30 (4K UHD Video)**
  - 4K@24/25/30Hz & 4K@50/60Hz (4:2:0), 8-bit color
  - Data rates higher than 5.3Gbps or above 225MHz TMDS clock but below 10.2Gbps
- **4K60 (4K UHD<sup>+</sup> Video)**
  - 4K@50/60Hz (4:4:4, 8-bit)
  - 4K@50/60Hz (4:2:0, 10-bit HDR)
  - Data rates higher than 10.2Gbps

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>ASCII</b>	American Standard Code for Information Interchange
<b>AV</b>	Audio/Video
<b>CEC</b>	Consumer Electronics Control
<b>CLI</b>	Command-Line Interface
<b>DAC</b>	Digital-to-Analog Converter
<b>dB</b>	Decibel
<b>DHCP</b>	Dynamic Host Configuration Protocol
<b>DVI</b>	Digital Visual Interface
<b>EDID</b>	Extended Display Identification Data
<b>Gbps</b>	Gigabits per second
<b>GUI</b>	Graphical User Interface
<b>HD</b>	High-Definition
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High-Definition Multimedia Interface
<b>HDR</b>	High Dynamic Range
<b>HDTV</b>	High-Definition Television
<b>HPD</b>	Hot Plug Detection
<b>IP</b>	Internet Protocol
<b>kHz</b>	Kilohertz
<b>LAN</b>	Local Area Network
<b>LED</b>	Light-Emitting Diode
<b>LPCM</b>	Linear Pulse-Code Modulation
<b>MHz</b>	Megahertz
<b>OSD</b>	On-Screen Display
<b>SNR</b>	Signal-to-Noise Ratio
<b>TCP</b>	Transmission Control Protocol
<b>THD+N</b>	Total Harmonic Distortion plus Noise
<b>TMDS</b>	Transition-Minimized Differential Signaling

<b>ACRONYM</b>	<b>COMPLETE TERM</b>
<b>4K UHD</b>	4K Ultra-High-Definition (10.2Gbps max)
<b>4K UHD+</b>	4K Ultra-High-Definition (18Gbps max)
<b>UHDTV</b>	Ultra-High-Definition Television
<b>USB</b>	Universal Serial Bus
<b>VGA</b>	Video Graphics Array
<b>WUXGA (RB)</b>	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
<b>XGA</b>	Extended Graphics Array
<b>Ω</b>	Ohm





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