CPLUS-V1616

16×16 Modular Matrix Chassis with System Control Card

This is a 16×16 Modular Matrix Chassis with four high-bandwidth input card slots, four high-bandwidth output card slots, and a system control card slot. A variety of I/O cards are available, and each standard card, input or output, is equipped with multiple audio/video ports and is capable of handling up to four independent 18Gbps video signals simultaneously. An additional, full bandwidth, HDMI input and output are provided on the included control card which are ideal for connection to a test signal generator and local confidence monitor.

The backplane cross-point can handle a maximum standard I/O configuration of 17×17 (including the CPU Control Card's ports). 4K UHD video sources, up to and including 4K@60Hz (4:4:4, 8-bit) as well as 10/12-bit sources with HDR are fully supported. All ports support up to 7.1 channel LPCM digital audio as well as Bitstream and HD Bitstream audio formats. I/O cards using the HDMI interface (HDMI 2.0, HDCP 2.2) are available now and I/O cards supporting HDBaseT (both with and without AVLC) as well as cards supporting other signal formats and features are under development.

The chassis is powered by a pair of high-quality, hot-swappable, load sharing power supplies with an integrated failure alarm system ensuring that mission critical installations can stay online 24/7. Control is via front panel buttons with an LCD menu, WebGUI, Telnet or RS-232.

FEATURES

- Input and output card slots support 18Gbps (600MHz) 4K UHD with HDR signals
- 8 high-bandwidth card slots (4 dedicated input slots, 4 dedicated output slots) with a maximum matrix configuration of 17×17
- 1 system control card slot (with support for 1 high-bandwidth input port and 1 high-bandwidth output port)
- System Control Card's HDMI ports support UHD resolutions up to 3840×2160@60Hz (4:4:4, 8-bit)
- System Control Card's HDMI ports support 4K HDR at 24Hz (4:4:4) and 60Hz (YUV 4:2:0) with up to 12-bit color
- System Control Card's HDMI ports support 12-bit Deep Color up to 1080p@60Hz
- System Control Card's HDMI ports support pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- Advanced EDID Management for rapid integration of sources and displays
- Field updatable firmware
- 3U rack mounted design
- 2 hot-swappable, load sharing, redundant power supplies
- Integrated component failure alarm system
- Control via front panel buttons with LCD menu, Ethernet (Telnet & WebGUI), and RS-232
- 4-port HDMI input and 4-port HDMI output cards are available now
- 4-port HDBaseT (with and without AVLC) input and output cards are under development

CPLUS-V1616

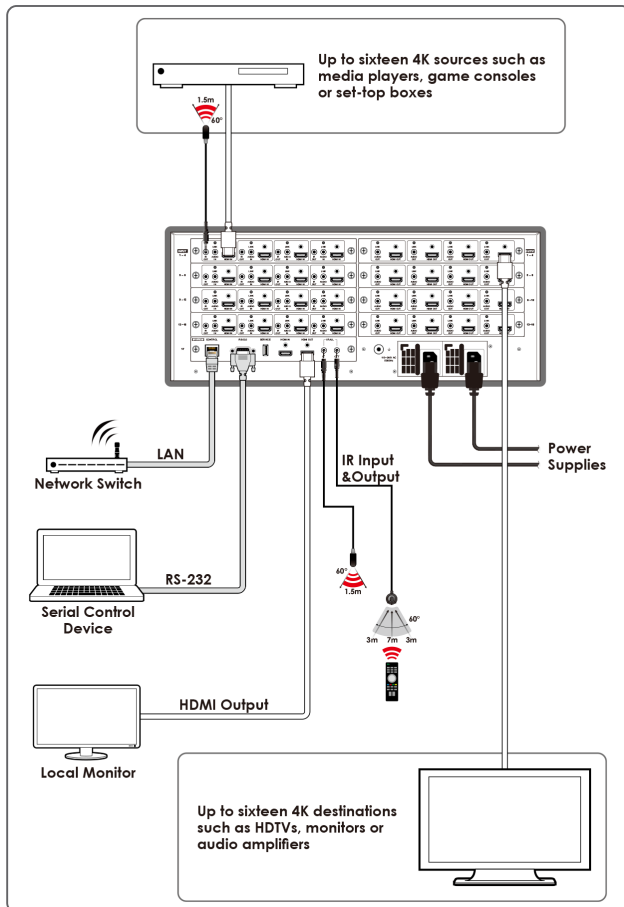16×16 Modular Matrix Chassis with System Control Card

PANELS

Front View

Rear View (Fully Populated)

DIAGRAM

SPECIFICATIONS

Interfaces

Input Port	4 Input Card Slots 1 HDMI
Output Port	4 Output Card Slots 1 HDMI
Pass-through Port	1 IR Blaster (3.5mm) 1 IR Extender (3.5mm)
Control I/O	1 RS-232 (DE-9) 1 Ethernet (RJ-45)
Service Port	1 USB (Type-A)

Video (System Control Card)

HDMI Compliance	2.0	
HDCP Compliance	2.2	
Input Signal Type	4K@60 8-bit YUV 4:4:4, HDR10	
Output Signal Type	4K@60 8-bit YUV 4:4:4, HDR10	
		Resolutions
Maximum Input	HDMI	3840×2160p@60
Maximum Output	HDMI	3840×2160p@60

Audio (System Control Card)

HDMI	LPCM (8 Channels), Bitstream, HD Bitstream

Power

Power Supply	12V/41A, 5V/3A (Redundant, Hot-swapable)
Power Consumption	150W (Full load), 25W (Standby)

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	440mm×177mm×429mm [Case Only] 484mm×182mm×482mm [All Inclusive]
Weight	19kg
Rackmount Size	3U

Field Firmware Update

USB Flash Drive, WebGUI

ORDERING INFORMATION

Model No.	Product Description
CPLUS-V1616	16×16 Modular Matrix Chassis with System Control Card
CIN-V4HP	4-Port HDMI Input Card
COUT-V4HP	4-Port HDMI Output Card
CIN-4C	4-Port HDBT Input Card
COUT-4C	4-Port HDBT Output Card
CIN-V4CV	4-Port HDBT with AVLC Input Card
COUT-V4CV	4-Port HDBT with AVLC Output Card

CIN-V4HP

This 4-port HDMI Input Card provides 4 independent high-bandwidth HDMI inputs, paired with IR output and analog stereo inputs. Each grouping can be freely routed to any available output 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).

PANEL

Front View

FEATURES

- 4 HDMI input ports paired with IR output and analog stereo input ports
- Single-link DVI compatible with the use of an HDMI-DVI adapter
- HDCP 2.2 and HDCP 1.x compliant
- Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video
- Supports 10-bit and 12-bit HDR (High Dynamic Range) output
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- Supports stereo audio embedding
- Per-input active signal detection LEDs
- This card's features are controlled by the modular matrix

SPECIFICATIONS

Interfaces

Input Port	4 HDMI 4 Analog Stereo (3.5mm)
Pass-through Port	4 IR Blasters (3.5mm)

Video

HDMI Compliance	2.0	
HDCP Compliance	2.2	
Input Signal Type	4K@60 8-bit YUV 4:4:4, HDR10	
Resolutions		
Maximum Input	HDMI	4096×2160p@60

Audio

HDMI	LPCM (8 Channels), Bitstream, HD Bitstream
Line Level	Frequency Response: < ±1dB (20Hz to 20kHz) THD: < 0.01% (20Hz to 20kHz) S/N Ratio: > 70dB (1kHz with 0dBFS) Crosstalk: < −60dB (10kHz, Vin=0dBFS)

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only] 197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

COUT-V4HP

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. Optionally, analog stereo audio may be extracted from the HDMI signal (LPCM 2.0 sources only).

PANEL

Front View

FEATURES

- 4 HDMI output ports paired with analog stereo output ports
- Single-link DVI compatible with the use of an HDMI-DVI adapter
- HDCP 2.2 and HDCP 1.x compliant
- Supports up to 4K UHD (18Gbps, 4K@50/60Hz 4:4:4, 8-bit) video
- Supports 10-bit and 12-bit HDR (High Dynamic Range) output
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- Supports stereo audio extraction (LPCM 2.0 sources only)
- Per-output active signal detection LEDs
- This card's features are controlled by the modular matrix

SPECIFICATIONS

Interfaces

Output Port	4 HDMI 4 Analog Stereo (3.5mm)

Video

HDMI Compliance	2.0	
HDCP Compliance	2.2	
Output Signal Type	4K@60 8-bit YUV 4:4:4, HDR10	
Resolutions		
Maximum Output	HDMI	4096×2160p@60

Audio

HDMI	LPCM (8 Channels), Bitstream, HD Bitstream
Line Level	Frequency Response: < ±1dB (20Hz to 20kHz) THD: < 0.01% (20Hz to 20kHz) S/N Ratio: > 70dB (1kHz with 0dBFS) Crosstalk: < −60dB (10kHz, Vin=0dBFS)

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only] 197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

▶ CIN-4C

This 4-port HDBT Input Card provides 4 independent high-bandwidth HDBT inputs, paired with IR input and optical audio inputs which supports the Optical Audio Return (OAR) channel feature, found on compatible HDBaseT receivers, allowing optical audio sources connected to those receivers to be sent back to the matrix unit. Each grouping can be freely routed to any available output on the connected modular matrix.

PANEL

Front View

FEATURES

- 4 HDBT input ports paired with IR input and optical audio input ports
- Supports 4K HDR at 24Hz (4:4:4) and 60Hz (YUV 4:2:0) with up to 12- bit color
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- Supports Optical Audio Return
- This card's features are controlled by the modular matrix

ORDERING INFORMATION

Model No.	Product Description
CIN-4C	4-Port HDBT Input Card
CH-1605RXV	UHD⁺ HDMI over HDBaseT Receiver with HDR/ARC

SPECIFICATIONS

Interfaces

Input Port	4 HDBT (RJ-45) 4 Optical audio
Control I/O	4 IR Extender (3.5mm)

Video

HDBT Compliance	HDBT 4K@30	
HDCP Compliance	2.2	
Input Signal Type	4K@60 8bit YUV 4:2:0	
Resolutions		
Maximum Input	HDBT	4096×2160p@60 YUV 4:2:0

Audio

HDBT	LPCM (8 Channels), Bitstream, High Bit Rate Bitstream
Optical In	LPCM (8 Channels), Bitstream, High Bit Rate Bitstream

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only] 197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

▶ COUT-4C

This 4-port HDBT output Card provides 4 independent high-bandwidth HDBT outputs, paired with IR input and analog stereo outputs. Any available input on the connected modular matrix can be freely routed to each output of the card .

PANEL

Front View

FEATURES

- 4 HDBT output ports paired with IR output and analog stereo output ports
- Supports 4K HDR at 24Hz (4:4:4) and 60Hz (YUV 4:2:0) with up to 12- bit color
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- This card's features are controlled by the modular matrix

ORDERING INFORMATION

Model No.	Product Description
COUT-4C	4-Port HDBT Output Card
CH-1605TXV	UHD⁺ HDMI over HDBaseT Transmitter with HDR/ARC

SPECIFICATIONS

Interfaces

Output Port	4 HDBT (RJ-45) 4 Stereo analog audio (3.5mm)
Control I/O	4 IR Blaster (3.5mm)

Video

HDBT Compliance	HDBT 4K@30	
HDCP Compliance	2.2	
Output Signal Type	4K@60 8bit YUV 4:2:0	
Resolutions		
Maximum Output	HDBT	4096×2160p@60 YUV 4:2:0

Audio

HDBT	LPCM (8 Channels), Bitstream, High Bit Rate Bitstream
Audio Out	Frequency Response: < ±1dB (20Hz to 20kHz) THD: < 0.01% (20Hz to 20kHz) S/N Ratio: > 70dB (1kHz with 0dBFS) Crosstalk: < −60dB (10kHz, Vin=0dBFS)

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only] 197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

CIN-V4CV

4-Port HDBT with AVLC Input Card

This 4-port HDBT Input Card provides 4 independent high-bandwidth HDBT inputs, paired with IR input and optical audio inputs which supports the Optical Audio Return (OAR) channel feature, found on compatible HDBaseT receivers, allowing optical audio sources connected to those receivers to be sent back to the matrix unit. Each grouping can be freely routed to any available output on the connected modular matrix. Despite HDBaseT's 10.2Gbps bandwidth limitation, each port is able to supports up to and including 4K@60Hz (4:4:4, 8-bit) as well as 10/12-bit sources with HDR to be received and processed by the use of AVLC (Adaptive Visually Lossless Compression) when connected to a compatible AVLC Receiver.

PANEL

TBD
Front View

FEATURES

- 4 HDBT input ports paired with IR input and optical audio input ports
- Supports 4K HDR at 24Hz (4:4:4) and 60Hz (YUV 4:2:0) with up to 12- bit color
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1, Bitstream, and HD Bitstream
- Supports Optical Audio Return
- This card's features are controlled by the modular matrix

ORDERING INFORMATION

Model No.	Product Description
CIN-V4CV	4-Port HDBT with AVLC Input Card
CH-1605RXV	UHD$^+$ HDMI over HDBaseT Receiver with HDR/ARC

SPECIFICATIONS

Interfaces

Input Port	4 HDBT (RJ-45)
	4 Optical audio
Control I/O	4 IR Extender (3.5mm)

Video

HDBT Compliance	HDBT 4K@60	
HDCP Compliance	2.2	
Input Signal Type	4K@60 8bit YUV 4:4:4	
Resolutions		
Maximum Input	HDBT	4096×2160p@60 YUV 4:4:4

Audio

| **HDBT** | LPCM (8 Channels), Bitstream, High Bit Rate Bitstream |
| **Optical In** | LPCM (8 Channels), Bitstream, High Bit Rate Bitstream |

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only]
	197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

COUT-V4CV

4-Port HDBT with AVLC Output Card

This 4-port HDBT output Card provides 4 independent high-bandwidth HDBT outputs, paired with IR input and analog stereo outputs. Any available input on the connected modular matrix can be freely routed to each output of the card. Despite HDBaseT's 10.2Gbps bandwidth limitation, each port is able to supports up to and including 4K@60Hz (4:4:4, 8-bit) as well as 10/12-bit sources with HDR to be received and processed by the use of AVLC (Adaptive Visually Lossless Compression) when connected to a compatible AVLC Transmitter.

PANEL

TBD
Front View

FEATURES

- 4 HDBT output ports paired with IR output and analog stereo output ports
- Supports 4K HDR at 24Hz (4:4:4) and 60Hz (YUV 4:2:0) with up to 12- bit color
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM 2.0/5.1/7.1 Bitstream, and HD Bitstream
- This card's features are controlled by the modular matrix

ORDERING INFORMATION

Model No.	Product Description
COUT-V4CV	4-Port HDBT with AVLC Output Card
CH-1605TXV	UHD$^+$ HDMI over HDBaseT Transmitter with HDR/ARC

SPECIFICATIONS

Interfaces

Output Port	4 HDBT (RJ-45)
	4 Stereo analog audio (3.5mm)
Control I/O	4 IR Blaster (3.5mm)

Video

HDBT Compliance	HDBT 4K@60	
HDCP Compliance	2.2	
Output Signal Type	4K@60 8bit YUV 4:4:4	
Resolutions		
Maximum Output	HDBT	4096×2160p@60 YUV 4:4:4

Audio

HDBT	LPCM (8 Channels), Bitstream, High Bit Rate Bitstream
Audio Out	Frequency Response: < ±1dB (20Hz to 20kHz)
	THD: < 0.01% (20Hz to 20kHz)
	S/N Ratio: > 70dB (1kHz with 0dBFS)
	Crosstalk: < −60dB (10kHz, Vin=0dBFS)

Enclosure

Chassis Material	Metal (Steel)
Chassis Color	Black
Dimensions (W×H×D)	187.4mm×29.1mm×344.9mm [Case Only]
	197.5mm×29.1mm×364.6mm [All Inclusive]
Weight	458g

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