

CMLUX-4H4CAT

4 by 4 HDMI V1.3

over CAT6 Matrix with IR

Return Control

Operation Manual



CMLUX-4H4CAT
HDMI V1.3 to CAT6 4X4 Matrix

CMLUX-4H4CAT

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• **Safety Precautions**

Please read all instructions before attempting to unpack or 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 module openings or empty slots, as you may damage parts.
- Do not attach the power supply cabling to building surfaces.
- Do not allow anything to rest on the power cabling or allow it to be abused by persons walking on it.
- To protect the equipment from overheating, do not block the slots and openings in the module housing that provide ventilation.

• **Revision History**

<i>Version No</i>	<i>Date</i>	<i>Summary of Change</i>
<i>V1</i>	<i>20091001</i>	<i>Preliminary Release</i>
<i>VR2</i>	<i>20120416</i>	<i>IR Blaster's Frequency</i>

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1. Introduction

The CMLUX-4H4CAT is a 4 x 4 HDMI over CAT6 Matrix that is a high performance device, boasting features such as a remote control, IR blaster and IR receiver. Compatible with Deep Color Video and high definition digital audio, this device has the ability to direct any of its four HDMI sources to any of the four HDMI displays, with each display showing a different source. Furthermore, since the signal is sent over CAT6 cables, you gain a long operating distance (50m at 1080p 8 bits) and if connected to a CAT 6 receiver or splitter you can extend your operating range over even longer distances. Lastly, with four individual output IR blasters, users are able to control the input sources with their existing remote controls. Are you in need of a device that offers you complete control over HDMI devices and displays, then look no further the CMLUX-4H4CAT 4 x 4 HDMI over CAT6 Matrix is the device you have been searching for.

2. Applications

- Control multiple sources and displays
- Integrate your home entertainment system
- Multi-task project presentation
- Showroom Display
- Advertising Display control
- System installation control

3. Package Contents

- 4 by 4 HDMI Matrix
- Remote Control (with Battery)
- 1 x IR Receiver
- 4 x IR Blasters
- 5V DC Power Supply Adaptor
- Power Cord
- Operation Manual

4. System Requirements

- Input source equipment with HDMI cable(s).
- Output source equipment(s) with HDMI cable(s) and CAT6 to HDMI receiver(s).

5. Features

- HDCP 1.1 and DVI 1.0 compliant.
- Supports HDMI with Deep Color Video of up to 36 bits (12bits/ color) and high definition (Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio) digital audio.
- When the HDMI signal passes through this device it is compensated, clock/phase adjusted and jitter free.
- Input/output LED indicators.
- Compatible with most HDMI sources and displays .
- Supports a wide range of PC and HDTV resolutions from VGA to UXGA and 480i to 1080p .
- Has RS-232 control
- Supports IR remote control with an IR extender and blaster.
- Dolby Digital, DTS digital audio transmission (32-192 kHz Fs sample rate).
- Indicates whether the source is HDCP, HDMI or DVI via an LED light.
- Cable testing showed that at 1080p/8 or 12 bits resolution the input & output source(s) can be up to 15 meters away.

Notes:

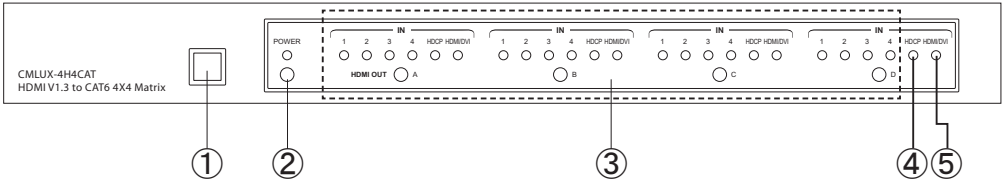
- A. Cables used for testing were CAT6 and 23AWG, using cables of another type will result in a different operating distance.
- B. Equipment used for cable distance testing: PS3 20G, 37" Philips 8 LCD TV and 37" SAMSUNG 12 bit LCD TV.
- C. Figures provided in this manual are for reference use only, actual with performance will depend on the type of source and display used, along your cables specification.

6. Specifications

Video Bandwidth	2.25 MHz/6.75Gbps
Input Ports	4 x HDMI female ports,
Output Ports	4 x Video/DDC CAT 6 ports
EDID	Standard, TV/Moving Port 1
ESD Protection	Human body model: $\pm 10\text{kV}$ (air-gap discharge) $\pm 6\text{kV}$ (contact discharge)
HDMI Audio Output	PCM2, PCM5.1, PCM7.1, Dolby5.1, DTS5.1, DD+, D-TrueHD, and DTS-HD
HDMI Cable In	1080p 8-bit (15M), 1080p 12-bit (15M)
HDMI Cable Out	1080p 8-bit (15M), 1080p 12-bit (15M)
CAT6 Cable Out	1080p 8-bit (45M), 1080p 12-bit (15M)
Color Space	RGB_24/36, YCbCr 4:4:4_24/36, YCbCr 4:2:2, xvYCC
IR IN/OUT	Yes/Yes
Deep Color	1080p 12-bit
HDMI Resolution	480i~1080p 50/60, 1080p 24, VGA~UXGA
DVI Resolution	480i~1080p 50/60, 1080p 24, VGA~UXGA
Power Supply	5V DC/6A (US/EU standards, CE/FCC/UL certified)
Dimensions (mm)	438(W) x 175(D) x 44(H)
Weight(g)	2150
Chassis Material	Aluminum
Silkscreen Color	Black
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 104°F
Relative Humidity	20% ~ 90% RH (non-condensing)
Power Consumption	16.5W (MAX)

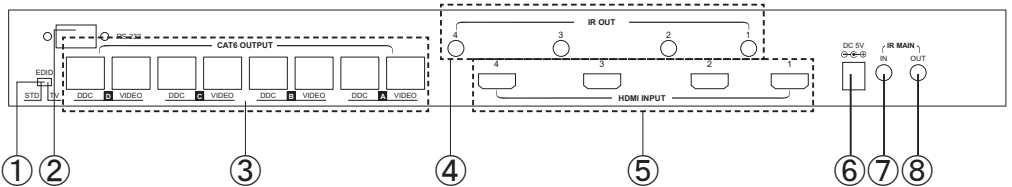
7. Operation Controls and Functions

7.1 Front Panel



- ① Remote control sensor.
- ② Power switch & LED Indicator: This LED will illuminate when the power is turned on.
- ③ Input Select/Indicators (A/B/C/D): Repeatedly press each “HDMI out” button to switch to your desired source. The LED that turns on will indicate which input source is being selected and routed to the HDMI A display.
- ④ HDCP indicators: This LED will illuminate once the input source being played comes with a HDCP protection.
- ⑤ HDMI/DVI indicators: When the input source has HDMI content, this LED will turn on. When the input source has DVI content, this LED will not turn on.

7.2 Rear Panel



- ① EDID Control Switcher: The default factory setting is TV, leave as is when content is displayed properly. Switch to STD to use built-in EDID.

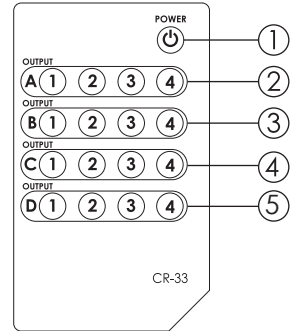
Note:

1. When EDID is switched to TV, the unit will detect the first HDMI output source's EDID and record it in the unit. If the first detected output source is DVI, it will skip onto the next source until the first HDMI source is detected. The detection priority is HDMI v1.3 > HDMI v1.2 > DVI.
2. When EDID is switched to STD, the unit will use its built-in EDID that supports:
Video → 1080p 12-bit (max) supports xvYCC
Audio → PCM 2CH
3. The EDID selection will only be activated after the unit is re-plugged and powered on.

- ②. RS-232: This slot is where you connect a D-Sub 9 pin cable to the PC COM port when controlling the device over RS-232. Detailed specifications are listed in section 9.
- ③. Video/DDC CAT6 outputs: These slots are where you connect two CAT6 cables to a receiver box that has HDMI output and through the HDMI output it can be connect to TV. The receiver box can also be a splitter that provides additional CAT6 outputs when cascading from a HDMI receiver to the display via HDMI cable.
- ④. IR OUT: These slots are where you connect the IR blaster cables that were included in the package. Place them near each source device in order to properly send an infrared signal.
- ⑤. HDMI inputs: These slots are where you connect the HDMI input ports to the HDMI/DVI output ports of your source device such as a DVD/Blu Ray player or Set Top Box, using HDMI cables.
- ⑥. Power: Plug the 5V DC power supply into the unit and connect the adaptor to an AC outlet.
- ⑦. IR MAIN IN: This slot is where you connect the IR receiver cable included in the package. Connecting the IR receiver cable allows you to control your source devices using the existing remote controls.
- ⑧. IR MAIN OUT: This slot is where you connect the IR blaster cable included in the package. Place it near both the device and/or source equipments for infrared signal sending.

8. Remote Control

1. Power: Press this button to turn on/off the unit.
2. Input Select for HDMI OUT A: Press 1, 2, 3 or 4 to select the desired input source for HDMI OUT A.
3. Input Select for HDMI OUT B: Press 1, 2, 3 or 4 to select the desired input source for HDMI OUT B.
4. Input Select for HDMI OUT C: Press 1, 2, 3 or 4 to select the desired input source for HDMI OUT C.
5. Input Select for HDMI OUT D: Press 1, 2, 3 or 4 to select the desired input source for HDMI OUT D.



9. RS-232 Protocol

9.1 Pin Definitions

CMLUX-4H4CAT			Remote Control Console	
PIN	Definitions		PIN	Definitions
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

* RS-232 transmission format:

Baud Rate: 9600bps

Data Bit: 8 bits

Parity: None

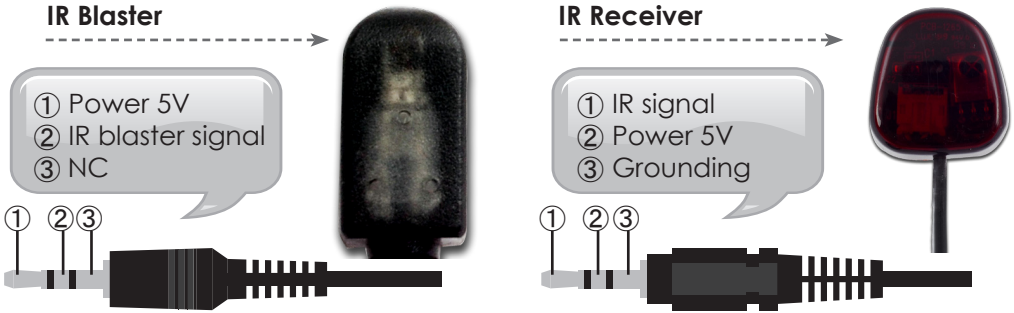
Stop Bit: 1 bit

Flow Control: None

9.2 Commands

COMMAND	ACTION
POWER 00 ←	Power Off (standby)
POWER 01 ←	Power On
PORT 11 ←	Output A select Input1
PORT 12 ←	Output A select Input2
PORT 13 ←	Output A select Input3
PORT 14 ←	Output A select Input4
PORT 21 ←	Output B select Input1
PORT 22 ←	Output B select Input2
PORT 23 ←	Output B select Input3
PORT 24 ←	Output B select Input4
PORT 31 ←	Output C select Input1
PORT 32 ←	Output C select Input2
PORT 33 ←	Output C select Input3
PORT 34 ←	Output C select Input4
PORT 41 ←	Output D select Input1
PORT 42 ←	Output D select Input2
PORT 43 ←	Output D select Input3
PORT 44 ←	Output D select Input4

9.3. IR Cable Pin Definitions



Note: The frequency on IR Receiver can support 30~50KHz.

10. 3.5Ø Connectors Pin Definitions

10.1 IR IN Pin Definitions

Pin	Assignment
1	Power 5V
2	IR Signal
3	GND

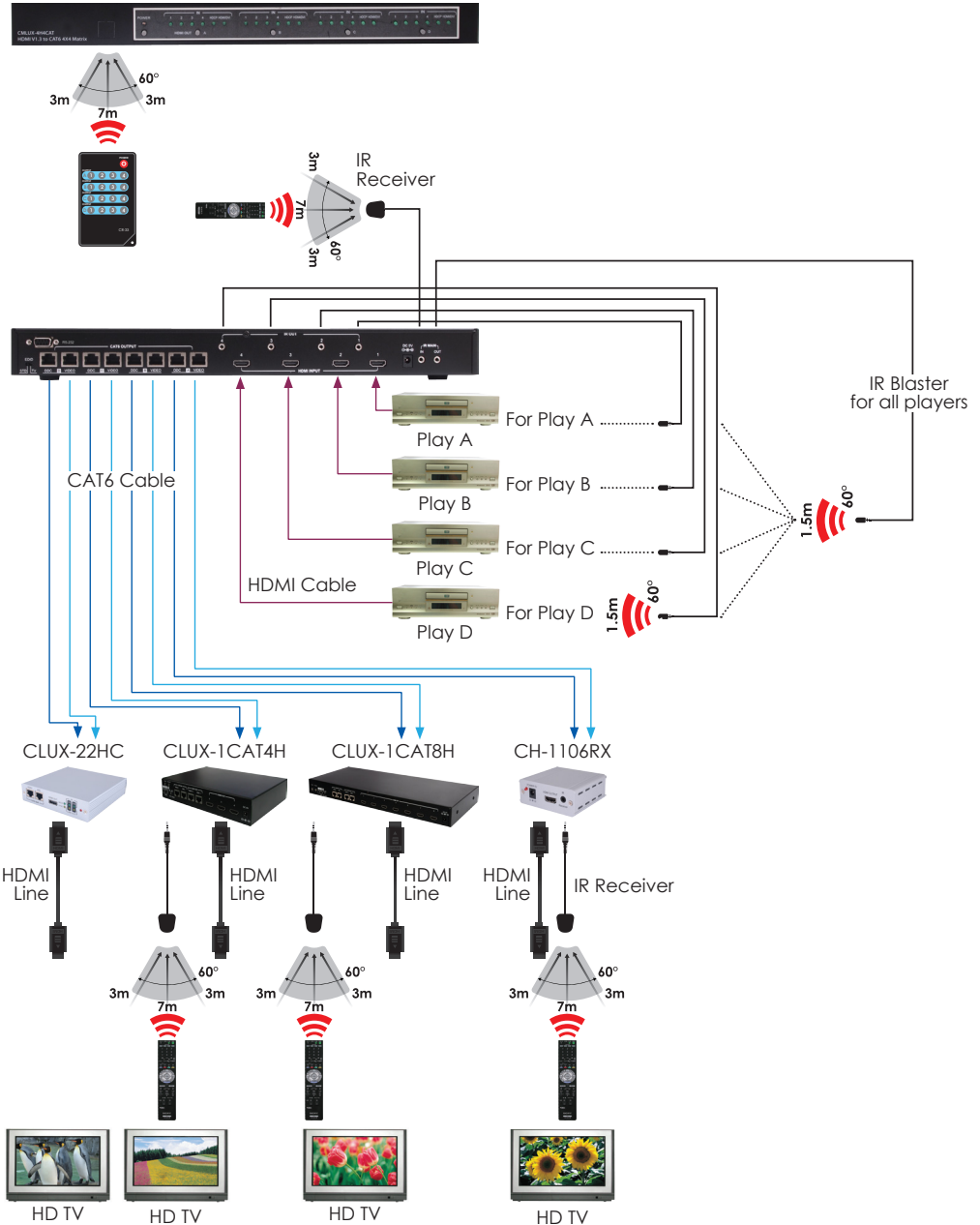
10.2 IR OUT Pin Definitions

Pin	Assignment
1	IR Blaster Signal
2	Power 5V
3	IR Blaster Signal

10.3 RJ-45 Pin Definitions

Pin	Video	DDC
1	TX2+	DDC Bus Clock
2	TX2-	NC
3	TX1+	DDC Bus Data
4	TX0+	Power 5V
5	TX0-	GND
6	TX1-	IR IN
7	TXC+	HPD
8	TXC-	NC

11. Connection and Installation





Acronyms

Acronym	Complete Term
CAT6	Category 6 Cable
DTS	Digital Theater Systems
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HDCP	High-Bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
IR	Infrared
UXGA	Ultra Extended Graphics Array
VGA	Video Graphics Array



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