

CLUX-14CEC

1x4 HDMI 1.3 Splitter
with CEC Function

Operation Manual



CLUX-14CEC

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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**

| Version No | Date | Summary of Change |
|-------------------|-----------------|----------------------------|
| V1 | 20091027 | Preliminary Release |

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1. Introduction

This HDMI v1.3 Splitter is an impressive device that can handle all of your HDMI signal distribution needs. From a single HDMI input it can transfer Deep Color (10-bit and 12-bit) video and new lossless compressed (Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio) digital audio with high bandwidth up to 225MHz (6.75Gbps) to four HDMI outputs. Besides splitting and distributing, it also amplifies and equalizes your signal, providing high I/O performance on both audio and video. On top of that, this device provides additional features like CEC, EDID and a system reset function for maintaining superb image quality.

2. Applications

- Show one HDMI source on four displays
- Show room display control
- Educational demo
- Installation usage

3. Package Contents

- 1 x 4 HDMI 1.3 Splitter
- 5V DC Power supply adaptor
- Operation Manual

4. System Requirements

- Input source equipments with HDMI output connector(s)
- Output displays with HDMI input connector(s)

5. Features

- HDMI 1.3, HDCP1.1 and DVI1.0 compliant Receiver
- Deep color video up to 12bit, 1080p@(24/60)Hz
- Simultaneously displays one HDMI source on four displays
- HDCP keysets that allow each output to work independently when connected to an HDMI display
- Splits a single HDMI source into four outputs(max.) without signal loss
- Supports DVI source and display via an HDMI to/from DVI adaptor cable.
- Supports LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission (32-192kHz Fs sample rate)
- Supports a wide range of PC and HDTV resolutions from VGA to UXGA and 480i to 1080p
- HDMI cable distance testing showed that with 1080p/8bits resolution the Input/Output source can reach up to 20/15 meters away, and at 1080p/12bits the I/O source can reach up to 10/10 meters.

Note:

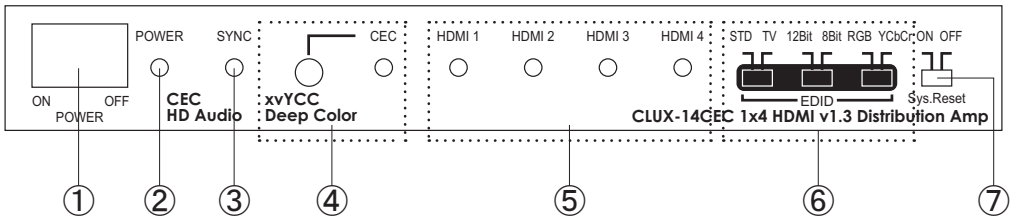
- A. Cable tested with CAT-6E /23AWG/Solid, using cables of another type may result in a different operating distance.
 - B. Cable distance test included the following: PS3 120G and 37" Samsung 12-bit LCD TV.
 - C. Figures provided in this manual are for reference only, actual figures may depend on the source and display used along with the type of cable.
- Supports EDID functionality and settings for Deep Color and color space. When EDID is switched to TV mode, the system will automatically detect Deep Color (8 bits or 12 bits) and color space (RGB or Y/Cb/Cr) settings from the source's EDID and record it into the unit. (For more detail please refer to section 7.1)
 - Supports xvYCC and CEC bypass and also system reset functions
 - Has CEC functions such as one touch play & record, a programmable timer, menu language, deck & device menu control, OSD display, device OSD transfer, remote control pass through, system audio control and system standby.
 - System standby will only be actived once the last TV is switched to standby

6. Specifications

| | |
|------------------------|---|
| Frequency Bandwidth | 2.25Gbps (single link) |
| Input Port | 1x HDMI female port (Type A connector) |
| Output Ports | 4x HDMI female ports (signal link) |
| HDMI Cable In | 1080p 8-bit (20M), 12-bit (15M) |
| HDMI Cable Out | 1080p 8-bit (10M), 12-bit (10M) |
| ESD Protection | Human body model: $\pm 10\text{kV}$ (air-gap discharge) $\pm 6\text{kV}$ (contact discharge) |
| PCB Stack - up | 4-layer board impedance control – differential 100Ω – Single 50Ω |
| Input TMDS Signal | 1.2 Volts (peak-to-peak) |
| Input DDC Signal | 5 Volts (peak-to-peak, TTL) |
| HDMI Output Resolution | 480i ~ 1080p, 1080p24, VGA ~ UXGA |
| Power Supply | 5VDC/2.6A (US/EU standards, CE/FCC/UL certified) |
| Dimensions (mm) | 200(W) x 104(D) x 25(H) |
| Weight(g) | 572 |
| Chassis Material | Metal |
| Silkscreen Color | Black |
| Operating Temperature | $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$ / $32^{\circ}\text{F} \sim 104^{\circ}\text{F}$ |
| Storage Temperature | $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$ / $-4^{\circ}\text{F} \sim 140^{\circ}\text{F}$ |
| Relative Humidity | 20% ~ 90% RH (non-condensing) |
| Power Consumption | 5.5W (max) |

7. Operation Controls and Functions

7.1 Front Panel



- ① Power Switch: This switch turns the system on and off.
- ② Power LED Indicator: This LED is green when power is on and red when the power is OFF.
- ③ Sync LED: When an HDMI source is connected to the input port, this LED will turn on only when the splitter has established a link.
- ④ CEC button & LED: Press this button to switch the CEC function on or off. The LED will turn yellow when the CEC is switched on. The factory default setting is on.

Note:

1. In order to perform the CEC function, both source and display must have CEC support.
2. The standby mode will only be activated when the last display has been switched to standby.
3. All four HDMI outputs support CEC.
- ⑤ Output LED: When the HDMI display has been connected to the output ports and a signal is being sent the LED will switch on.
- ⑥ EDID switch STD/TV: When switched to STD, EDID's manual settings of Deep Color (12 or 8 bits) and color space (RGB or YCbCr) are allowed. When switched to TV, the splitter will use the external EDID. If the EDID is switched to STD users can then change the EDID's Deep Color value between 8 or 12bits, under the condition that all outputs have the same number of bits. For example, the EDID is switched to 12 bits but only 3 output displays support 12 bits and one supports 8 bits. The 8 bit display will not be able to display any media. Therefore it is recommended to choose settings compatible with all connected displays. Users can also switch between RGB or YCbCr for the EDID's color space. But again, all output displays need to comply with the selected settings. Most TV monitors support both RGB and YCbCr but some monitors only support RGB. When the EDID color space is set to YCbCr some monitors may not display any image and/or display a "reddish" image. In cases like this switching the EDID to RGB is a must. Factory default is set as YCbCr. When the EDID is switched to TV, the unit will detect the first HDMI output

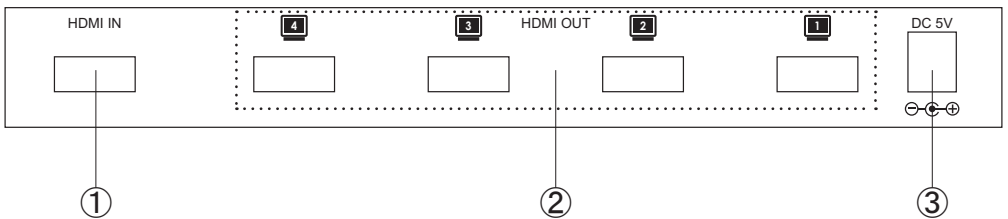
EDID and record/save it in the unit. If the display attached to the first output source is DVI it will skip to next output until the first HDMI is detected.

- ⑦ Sys. Reset switch: It is suggested to always turn this setting OFF, unless performing a system reset. By turning it to on, the system will reset all connected displays to HDMI input 1 once every 8~10 minutes. Factory default is set as OFF.

Note:

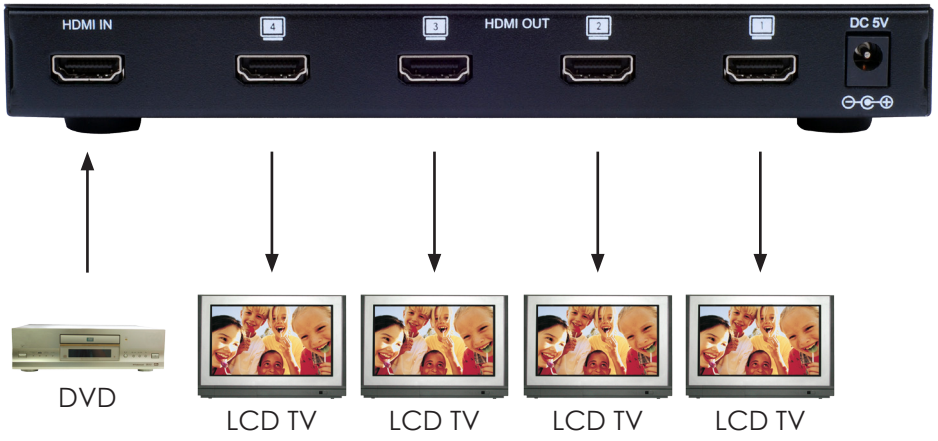
The system reset switch only functions on displays with a built-in CEC feature.

7.2 Rear Panel



- ① HDMI Input: This slot is where you connect the output port of your HDMI / DVI source (i.e., DVD, set-top box) using a HDMI / HDMI to DVI adaptor cable.
- ② HDMI output 1/2/3/4: These slots connect from the splitter to the input ports of the HDMI displays. If there's more than one output connected, all HDMI outputs will display an identical image.
- ③ Power: This is the slot where you insert the 5V DC power supply for electrical power from an AC outlet.

8. Connection and Installation





Acronyms

| Acronym | Complete Term |
|----------------|---|
| CEC | Consumer Electronics Control |
| DTS | Digital Theater Systems |
| DVI | Digital Visual Interface |
| EDID | Extended Display Identification Data |
| HDCP | High-Bandwidth Digital Content Protection |
| HDMI | High-Definition Multimedia Interface |
| PC | Personal Computer |
| PCB | Printed Circuit Board |
| SYNC | Synchronize |
| TMDS | Transition Minimized Differential Signaling |
| TTL | Transistor-Transistor Logic |
| UXGA | Ultra Extended Graphics Array |
| VGA | Video Graphics Array |



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