CPLUS-V11PE2
4K UHD+ LPCM2.0 Audio Extractor

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
VR0	20/01/17	Preliminary Release
VR1	11/02/17	Delete texts

CONTENTS

1. INTRODUCTION

This 4K UHD LPCM 2.0 Audio Extractor can extract up to 2 channels of LPCM audio from an HDMI source, allowing the user to convert high quality HDMI audio into more convenient analog (LPCM 2.0 only) or optical signals for use with powered speakers or non-HDMI AV receivers. Both the input and output HDMI ports support 4K UHD resolutions up to 4K@60Hz (YUV 4:4:4, 8-bit) and are capable of providing high quality audio and video performance. This unit supports pass-through of HD and standard bitstream formats as well as LPCM 2.0 with audio sampling rates up to 192 kHz. Built in EDID management support allows the user select from multiple EDIDs and, with the use of optional PC software, to edit, upload and download EDID files.

2. APPLICATIONS

- Audio extraction for use with non-HDMI AV receivers or powered speaker systems
- AV system integration and home theater installation
- Supporting HDMI sources on DVI displays with analog or external speaker systems
- HDMI/DVI EDID management

3. PACKAGE CONTENTS

- 1 x 4K UHD LPCM 2.0 Audio Extractor
- 1 x 5V Power Adaptor
- 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.
- Analog audio receiving equipment such as audio amplifiers or powered speakers.
- The use of "Premium High Speed HDMI" cables is highly recommended.

5. FEATURES

- HDMI input and output 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
- Supports HD resolutions up to 3840x2160@60 Hz (YUV 4:4:4, 8-bit) & 4096x2160@60 Hz (YUV 4:4:4, 8-bit)
- Supports 48-bit Deep Color up to 1080p60
- Supports pass-through of LPCM 7.1, bitstream and HD bitstream audio formats over HDMI
- Analog audio extraction supports LPCM 2.0 sources
- Optical S/PDIF audio extraction supports LPCM 2.0 & bitstream formats
- Supports HDMI and S/PDIF audio sampling rates up to 192 kHz
- Provides EDID management with EDID bypass and 2 user modifiable EDIDs
- PC based EDID management tool support
- Supports RS-232 style control via a Virtual COM port over USB

Note: 4K UHD sources or equivalently high-bandwidth signals require an appropriate compatible display and HDMI cables in order to achieve the best image quality. The use of "Premium High Speed HDMI" cables is highly recommended.

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel
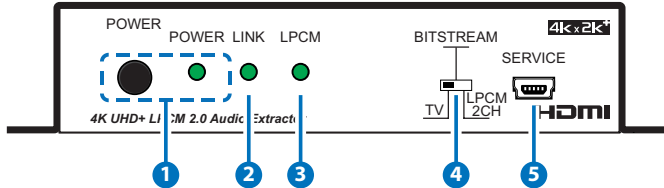
1 POWER/ POWER LED: Press this button to power the unit on or off. The LED will be lit when the unit is receiving power.

Note: Press and hold the Power button for 3 seconds to perform a factory reset. Release the button once the LEDs begin flashing.

2 LINK: This LED will illuminate to indicate that a live source has been detected on the input port. When no source is detected the LED will remain off.

3 LPCM: This LED will illuminate when LPCM audio has been detected on the HDMI input.

4 TV/BITSTREAM/LPCM 2CH: This switch selects the EDID that is provided to the input. The "TV" setting passes the EDID from the connected display without modification. "Bitstream" is the User 1 EDID and by default has a native resolution of 1080p60 with support for LPCM 2.0 and bitstream formats. "LPCM 2CH" is the User 2 EDID and by default has a native resolution of 1080p60 and limits the audio support to LCPM 2CH. The two User EDIDs can be modified using the PC software.

5 SERVICE: This slot is for EDID management, control and firmware update use. Connect directly to your PC/laptop using a standard Mini-USB cable to connect using the PC software or to send commands (via virtual COM port).

6.2 Rear Panel
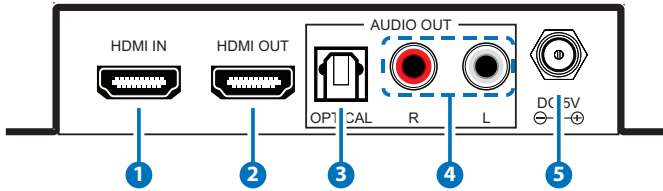
1 HDMI IN: Connect to HDMI source equipment such as a media player, game console or set-top box.

2 HDMI OUT: Connect to an HDMI TV, monitor or amplifier for digital video and audio output. (LPCM up to 7.1, bitstream, HD bitstream)

3 OPTICAL AUDIO OUT: Connect to powered speakers or an amplifier for digital audio output using an appropriate optical cable. (LPCM 2.0 and bitstream only)

4 ANALOG AUDIO OUT: Connect to powered speakers or an amplifier for stereo analog audio output. (LPCM 2.0 only)

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

6.3 Virtual COM Port Settings & Commands

Settings:

Baud Rate: 115200bps

Data bits: 8

Parity: None

Flow Control: None

Stop Bits: 1

Commands:

Command Name	Description	Parameters
P0	SET UNIT POWER OFF	NONE
P1	SET UNIT POWER ON	NONE
P?	GET POWER STATUS	NONE
SOURCEDET	SHOW INPUT INFORMATION	NONE
SINKINFO	SHOW SINK INFORMATION	NONE
HDCPIN	SET/SHOW INPUT HDCP STATUS	HDCPIN N [N=1~3, ?] 1: FOLLOW IN 2: FOLLOW OUT 3: APPLE MODE ?: GET STATUS *Default: FOLLOW OUT*
ECHO	SET/SHOW CONSOLE AUTO ECHO MODE	ECHO N [N=0, 1, ?] 0: OFF 1: ON ?: GET STATUS *Default: ON*
FADEFAULT	SET UNIT TO FACTORY DEFAULT	NONE
VER	SHOW UNIT FIRMWARE VERSION	NONE
REBOOT	SYSTEM REBOOT	NONE
?	SHOW DESCRIPTION OF COMMAND	NONE
HELP	SHOW DESCRIPTIONs OF COMMAND	NONE

Note: Commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

6.4 EDID Manager

This unit uses an EDID Management application which allows the user to copy the EDID from an attached display, edit an existing EDID file stored on the PC or create a basic EDID from scratch. The EDID can then be uploaded to the unit for use. Please obtain the EDID Management software from your authorized dealer and save it in a directory where you can easily find it.

Before connecting the unit to your PC, please install the appropriate Virtual COM Port Driver depending on your Windows version. Next, install the EDID Management software. After the installation has successfully completed, an icon for it will appear on the windows desktop. Launch the software by double-clicking on the icon and the EDID Management device detection window will open up on your screen.
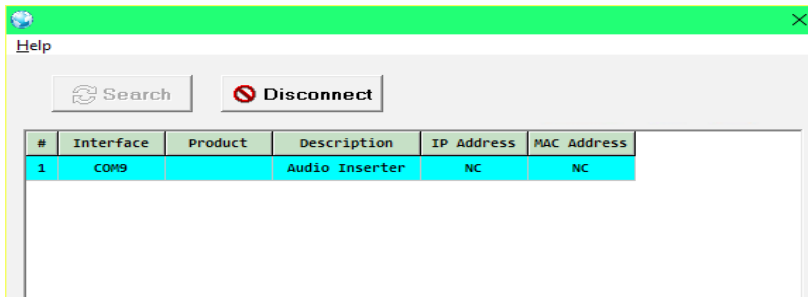

After launching the software, power the unit on and then connect it to the PC/laptop using a USB cable. Click on the "Search" button and any detected units will be displayed in the list. Clicking on a detected unit will open the EDID Commander window.

EDID Controller Tab
Mode Select: The currently selected EDID is displayed here. The "User 1" EDID corresponds to the "Bitstream" setting on the front of the unit. The "User 2" EDID corresponds to the "LPCM 2.0" setting on the front of the unit. Both of these EDIDs are user-replaceable. To return them to their original values, please perform a factory reset on the unit.

Save/Upload/Analysis: EDIDs may be saved to a PC, uploaded from a PC or analyzed.

- Any EDID from the unit or the connected HDMI display can be saved to your PC as a *.bin file by selecting the EDID source from the drop down menu and then clicking the "Save" icon.
- Previously saved EDID files (*.bin format) can be re-uploaded into the unit by selecting the User EDID to replace from the dropdown and then clicking the "Upload" icon. Before accepting the upload, the software will check and verify that the EDID's header and checksum values are acceptable.
- To analyze any EDID stored within the unit, select the EDID to view from the dropdown and click on the "Analysis" icon.
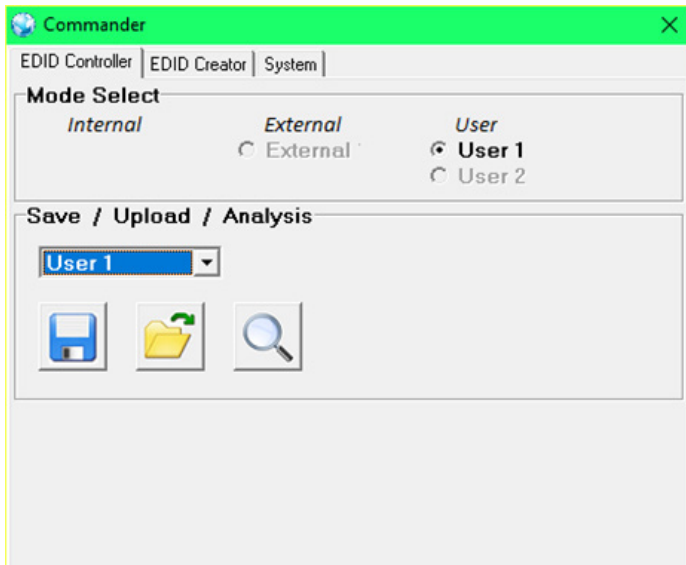
EDID Creator Tab

Click on the EDID Creator tab to begin designing a new EDID from scratch (select the "New" icon), to modify an existing EDID stored on the PC as a .bin file (select the "Load" icon) or to edit an EDID copied from the unit via the EDID Analyzer's edit option. Selecting "New" will automatically populate the various EDID fields with basic information that can be easily edited to match the user's preferences. Clicking on the "Load" icon will open a file load window and after the *.bin file

has been selected and loaded the EDID fields will be populated with the information from that file. The same will happen when the EDID is copied from the EDID Analyzer window.
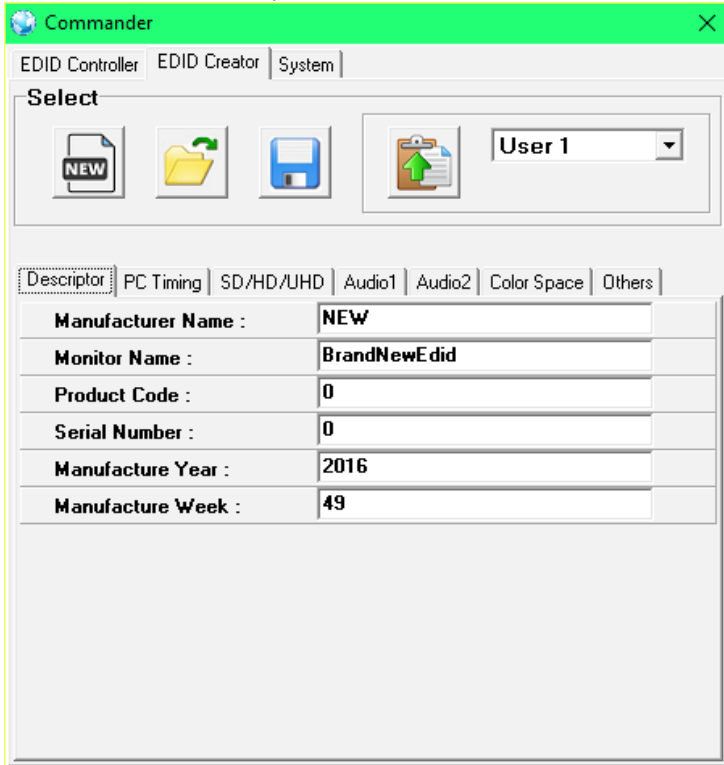
The following tabs provide access to a wide range of EDID information which can be edited:
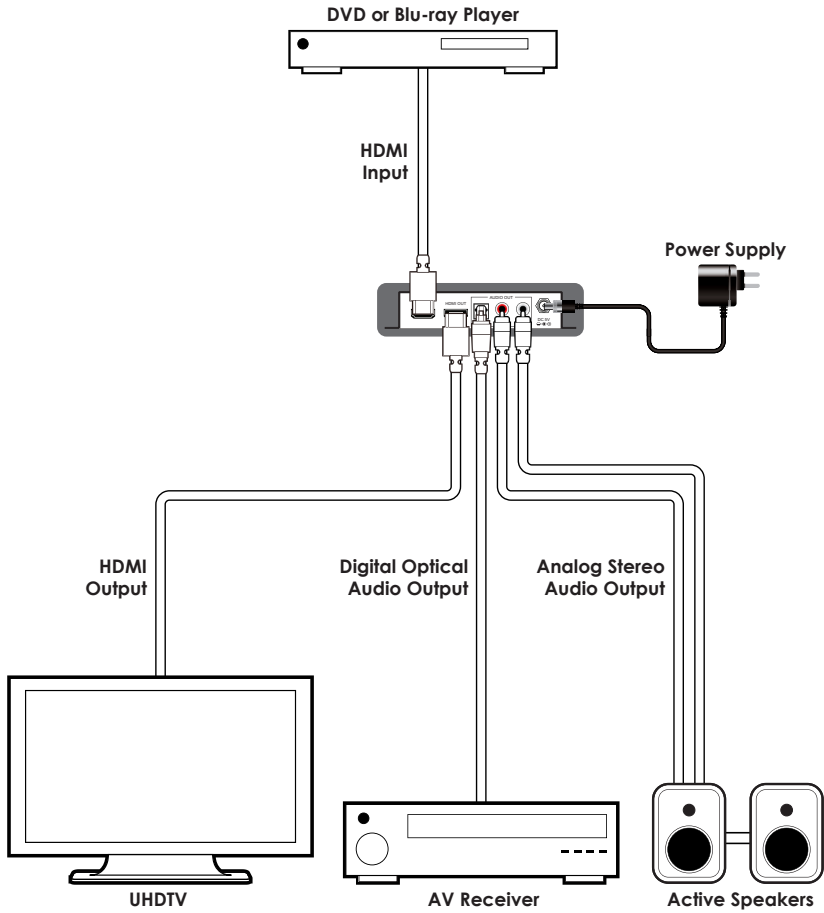
- **Descriptor:** This tab allows for the editing of various description and information fields within the EDID file such as Manufacturer Name, Monitor Name, etc.
- **PC Timing and SD/HD/UHD:** These tabs allow for the selection of the resolutions and refresh rates that the EDID will report as supported.
- **Audio1 and Audio2:** These tabs allow for the selection of which audio formats, audio frequencies, channels and speaker locations are supported.
- **Color Space:** This tab allows for the selection of which color formats and bit depths are supported, including BT.2020 and HDR support options.
- **Others:** This tab contains options for supporting 3D and defining the CEC Address.

Once the user is finished editing or creating an EDID it can be saved to a *.bin file locally or uploaded directly to the unit using the "Save" and "Upload" icons respectively.

System Tab

Select the System tab to edit the unit's description, to reset the unit to factory defaults and to view the unit's current hardware and firmware version information.

7. CONNECTION DIAGRAM

DVD or Blu-ray Player

HDMI Input

Power Supply

HDMI Output

Digital Optical Audio Output

Analog Stereo Audio Output

UHDTV

AV Receiver

Active Speakers

8. SPECIFICATIONS

Video Bandwidth	18Gbps (600Mhz)
Input Ports	1 x HDMI,
	1 x Mini-USB (service & control only)
Output Port	1 x HDMI,
	1 x Optical S/PDIF (Digital Audio),
	2 × RCA (Analog Audio)
HDMI Audio Sampling Rate	Up to 192 kHz
Optical Audio Sampling Rate	Up to 192 kHz
HDMI Cable I/O Distance*	10 meters, 1080p@12-bit
	15 meters, 1080p@8-bit
HDMI Audio Format	LPCM 2.0/5.1/7.1, Bitstream, HD Bitstream
Optical Audio Format	LPCM 2.0, Bitstream
Analog Audio Format	2 Channel (Stereo)
Power Supply	5V / 2.6A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human body model:
	±8kV (air-gap discharge)
	±4kV (contact discharge)
Chassis Material :	Metal
Silkscreen color :	Black
Dimensions	128mm x 25mm x 108mm (W×H×D)
	[Case Only]
	128mm x 30mm x 116.8mm (W×H×D)
	[All Inclusive]
Weight	358 g
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** | 3.91w |

Note: HDMI cable distance might affected by material or design of cable.

9. ACRONYMS

ACRONYM	COMPLETE TERM
CEC	Consumer Electronics Control
COAX	Coaxial
DTS	Digital Theater System
DVI	Digital Visual Interface
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
OPT	Optical
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduce Blanking)

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