



CYP CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection User Manual

[Home](#) » [CYP](#) » CYP CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection User Manual 

Contents

- [1 CYP CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection](#)
- [2 Product Information](#)
- [3 Product Usage Instructions](#)
- [4 SAFETY PRECAUTIONS](#)
- [5 INTRODUCTION](#)
- [6 APPLICATIONS](#)
- [7 PACKAGE CONTENTS](#)
- [8 SYSTEM REQUIREMENTS](#)
- [9 FEATURES](#)
- [10 OPERATION CONTROLS AND FUNCTIONS](#)
 - [10.1 Front Panel](#)
 - [10.2 Side Panel](#)
- [11 CONNECTION DIAGRAM](#)
- [12 SPECIFICATIONS](#)
- [13 ACRONYMS](#)
- [14 Documents / Resources](#)
- [15 Related Posts](#)



CYP CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection



Product Information

- **Product Name:** CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection
- **Operation Manual:** Included
- **Disclaimer:** Please read the disclaimer section in the user manual.
- **Copyright Notice:** All products or service names mentioned in this document are trademarks of the companies with which they are associated.
- **Trademark Acknowledgments:** Please refer to the user manual for trademark acknowledgments.
- **Safety Precautions:** Please read all instructions before unpacking, installing, or operating the equipment. Also, read the safety precautions related to connecting the power supply.
- **Version History:** REV. RDV1 (Released on 2019/04/29) – Preliminary release

Product Usage Instructions

1. Introduction

The introduction section provides an overview of the product. Please refer to the user manual for detailed information.

2. Applications

The applications section describes the different ways the product can be used. Please refer to the user manual for specific application details.

3. Package Contents

The package contents section lists the items included in the product package. Please refer to the user manual for the complete list of package contents.

4. System Requirements

The system requirements section outlines the necessary requirements for using the product. Please refer to the user manual for specific system requirements.

5. Features

The features section highlights the key features of the product. Please refer to the user manual for a detailed description of each feature.

6. Operation Controls and Functions

1. Front Panel

The front panel of the product contains the following controls and ports:

- **HDMI IN Port:** Connect to HDMI source equipment like a media player, game console, or set-top box.
- **HDMI OUT Port:** Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.
Note: This unit is powered by the 5V included with standard HDMI signals. In some cases, an HDMI source may not provide enough power. In such cases, external power can be provided via the Micro-USB port.

2. Side Panel

The side panel of the product contains the following port:

- **USB Port:** Plug a 5V Micro-USB power supply into this port to inject additional 5V power into the HDMI signal. (Optional) It is recommended to use power injection on the first and last unit when cascading.

7. Connection Diagram

The connection diagram shows how to connect the product with other devices like HDMI source equipment, AV receiver, HDMI splitter, and UHDTV. Please refer to the user manual for a detailed connection diagram.

8. Specifications

1. Technical Specifications

The technical specifications section provides details about the HDMI bandwidth, input/output ports, voltage injection ports, and ESD protection (HBM). Please refer to the user manual for specific technical specifications.

2. Video Specifications

The video specifications section provides details about the input and output HDMI formats. Please refer to the user manual for specific video specifications.

3. Audio Specifications

The audio specifications section provides details about the digital audio supported by the product, including LPCM max channels, sampling rate, and supported bitstream formats. Please refer to the user manual for specific audio specifications.

4. Cable Specifications

The cable specifications section provides information about the recommended cables for use with the product. Please refer to the user manual for specific cable specifications.

9. Acronyms

The acronyms section lists the acronyms used in the user manual. Please refer to the user manual for a comprehensive list of acronyms and their meanings.

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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 hazards, do not expose the unit to rain, or 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 to 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
RDV1	2019/04/29	Preliminary release

INTRODUCTION

This 4K UHD HDMI to HDMI Enhancer with 5V Power Injection is an advanced solution for HDMI signal extension and cascading. This unit is designed to enhance and stabilize high-bandwidth HDMI signals for cleaner transmission over long distances using multiple HDMI cables without the need for external power. 4K signals may be extended over distances up to 5M per cable segment with support for cascading up to 4 times. This unit is powered by the 5V that accompanies standard HDMI signals, however, in situations where additional 5V power is required (such as when cascading), it can be added with the simple connection of an external USB power source.

This repeater complies with the advanced HDCP 2.2 and HDMI 2.0 standards, as well as supporting the legacy HDCP 1.x and HDMI 1.x standards. 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. Up to 8 channel LPCM digital audio as well as Bitstream and HD Bitstream audio formats are supported as well. All functionality is automatic, requiring no external controls.

APPLICATIONS

- HDMI Signal Extension
- HDMI Cable Cascading
- Adding 5V Support to Legacy HDMI Sources

PACKAGE CONTENTS

- 1× 4K UHD+ HDMI Enhancer
- 1× Operation Manual

SYSTEM REQUIREMENTS

- HDMI source equipment such as a media player, video game console, PC, or set-top box
- HDMI-receiving equipment such as an HDTV, monitor, or audio amplifier
- The use of Premium High-Speed HDMI cables is highly recommended

FEATURES

- HDMI input and output support 18Gbps 4K UHD with HDR signals
- HDCP 1.x and 2.2 compliant
- Supports UHD resolutions up to 4096×2160@60Hz (4:4:4, 8-bit)
- Supports 12-bit Deep Color up to 1080p@60Hz
- Supports pass-through of audio formats including LPCM (Up to 8 channels), Bitstream, and HD Bitstream
- Supports CEC and ARC bypass
- Retiming capability allows for clean regenerated signals for transmission.
- Supports external 5V power injection via Micro-USB power supply (Optional)
- Supports up to 4 layers of cascading (5 cable segments)

Note: It is strongly suggested to use power injection on the first and last unit when cascading.

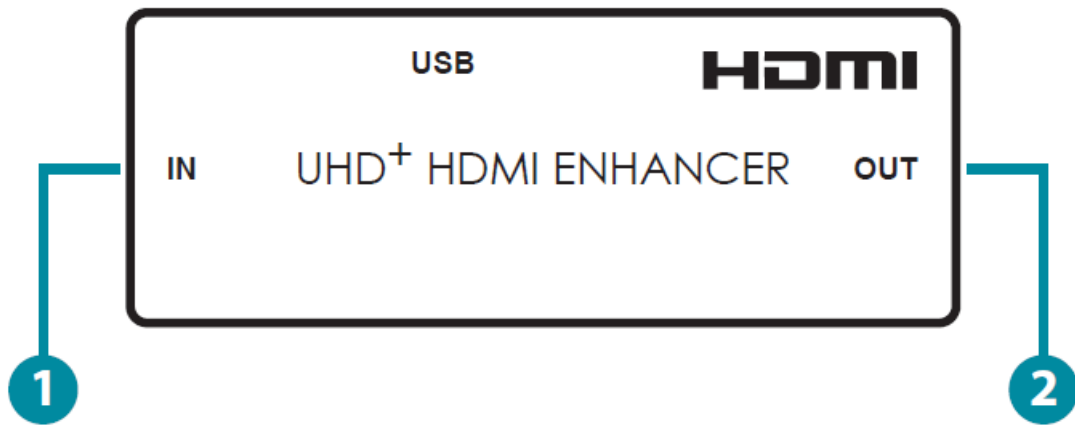
- Compact design

Note: High-quality 24AWG HDMI cable was used to verify cable distance and cascading support limits.

Different cable qualities can result in different cable distances and cascading performance.

OPERATION CONTROLS AND FUNCTIONS

Front Panel

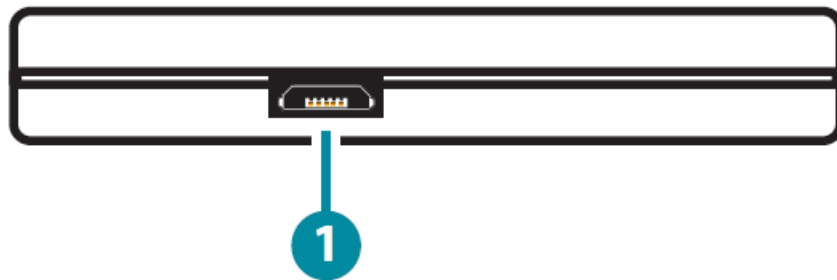


1. **HDMI IN Port:** Connect to HDMI source equipment such as a media player, game console, or set-top box.

Note: This unit is directly powered by the 5V included with standard HDMI signals. In some rare cases, an HDMI source may not provide enough power. In those cases, external power must be provided via the Micro-USB port.

2. **HDMI OUT Port:** Connect to HDMI TVs, monitors, or amplifiers for digital video and audio output.

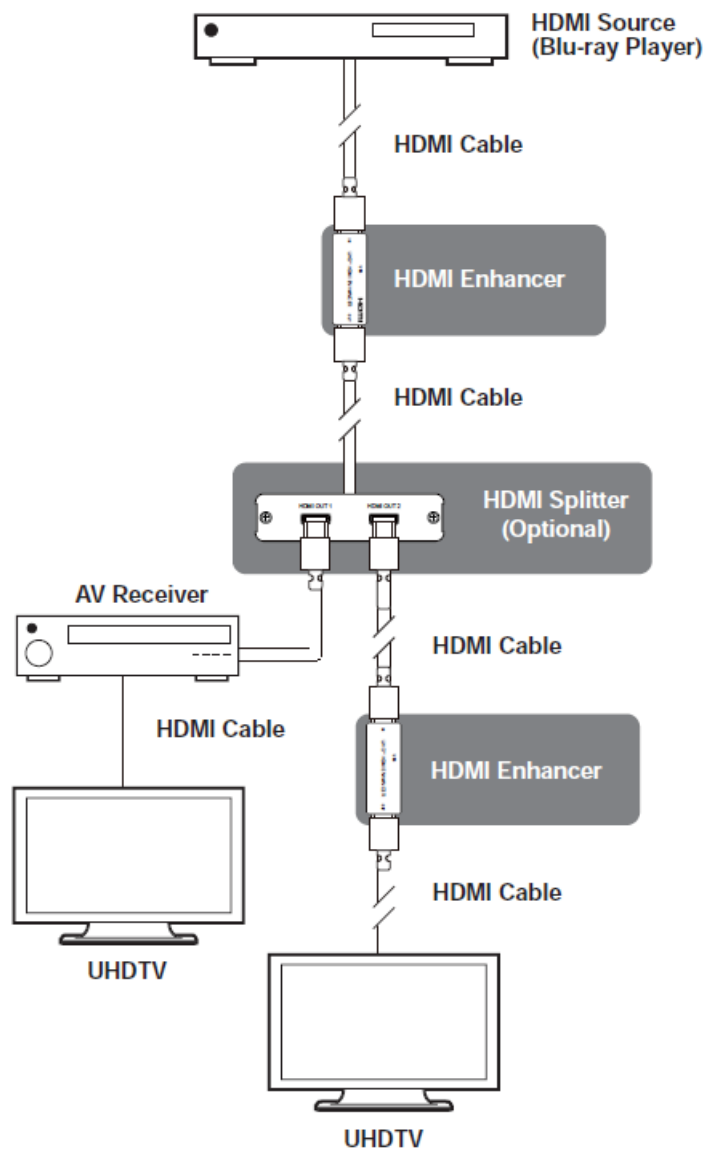
Side Panel



1. **USB Port:** Plug a 5V Micro-USB power supply into this port to inject additional 5V power into the HDMI signal. (Optional)

Note: It is strongly suggested to use power injection on the first and last unit when cascading.

CONNECTION DIAGRAM



SPECIFICATIONS

Technical Specifications

HDMI Bandwidth	18Gbps
Input Ports	1×HDMI (Type-A)
Output Ports	1×HDMI (Type-A)
Voltage Injection Port	1×USB 2.0 (Micro-B)
ESD Protection (HBM)	±8kV (Air Discharge)
	±4kV (Contact Discharge)
Dimensions (W×H×D)	65mm×10mm×24mm [All Inclusive]
Weight	15g
Chassis Material	Plastic
Chassis Color	Black
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	0.75W

Video Specifications

Supported Resolutions (Hz)	Input	Output
	HDMI	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	✓	✓
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	✓	✓

Audio Specifications

Digital Audio

HDMI Input / 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

Cable Specifications

	1080p		4K30	4K60
	8-bit	12-bit	(4:4:4) 8-bit	(4:4:4) 8-bit
Cable Length				
High-Speed HDMI Cable				
HDMI Input	15m	10m	5m	
HDMI Output	15m	10m	5m	

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 (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 (UHD+ Video)
 - 4K@50/60Hz (4:4:4, 8-bit)
 - 4K@50/60Hz (4:2:0, 10-bit HDR)
 - Data rates higher than 10.2Gbps



ACRONYMS

ACRONYM	COMPLETE TERM
ARC	Audio Return Channel
AV	Audio/Video
AVR	Audio/Video Receiver or Recorder
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HD	High-Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDR	High Dynamic Range
HDTV	High-Definition Television
LPCM	Linear Pulse-Code Modulation
PC	Personal Computer
UHD	Ultra-High-Definition (10.2Gbps)
UHD+	Ultra-High-Definition Plus (18Gbps)
UHDTV	Ultra-High-Definition Television
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA (RB)	Widescreen Ultra Extended Graphics Array (Reduced Blanking)
XGA	Extended Graphics Array

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Documents / Resources

 <p>CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection</p>  <p>Operation Manual</p>	<p>CYP CPLUS-VHH 4K UHD+ HDMI Enhancer with 5V Power Injection [pdf] User Manual CPLUS-VHH 4K UHD HDMI Enhancer with 5V Power Injection, CPLUS-VHH, 4K UHD HDMI Enhancer with 5V Power Injection, Enhancer with 5V Power Injection, 5V Power Injection, Power Injection, Injection</p>
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