



# CPRO-UHH

HDMI 4K UHD Enhancer



Operation Manual



## **DISCLAIMERS**

The information in this manual has been carefully checked and is believed to be accurate. Cypress Technology assumes no responsibility for any infringements of patents or other rights of third parties which may result from its use.

Cypress Technology assumes no responsibility for any inaccuracies that may be contained in this document. Cypress also makes no commitment to update or to keep current the information contained in this document.

Cypress Technology reserves the right to make improvements to this document and/or product at any time and without notice.

## **COPYRIGHT NOTICE**

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or any of its part translated into any language or computer file, in any form or by any means—electronic, mechanical, magnetic, optical, chemical, manual, or otherwise—without express written permission and consent from Cypress Technology.

© Copyright 2011 by Cypress Technology.

All Rights Reserved.

Version 1.1 August 2011

## **TRADEMARK ACKNOWLEDGMENTS**

All products or service names mentioned in this document may be trademarks of the companies with which they are associated.





## 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
RDV1	15/09/14	Preliminary Release
RDV2	09/12/14	Remove Power Supply
RDV3	13/03/15	Cable Distance
VS0	30/06/15	Updated Connection Diagram



## CONTENTS

<b>1. Introduction</b> .....	<b>1</b>
<b>2. Applications</b> .....	<b>1</b>
<b>3. Package Contents</b> .....	<b>1</b>
<b>4. System Requirements</b> .....	<b>1</b>
<b>5. Features</b> .....	<b>2</b>
<b>6. Operation Controls and Functions</b> .....	<b>3</b>
6.1 HDMI Dongle .....	3
<b>7. Connection Diagram</b> .....	<b>4</b>
<b>8. Specifications</b> .....	<b>5</b>
8.1 Technical Specifications .....	5
8.2 Supported Resolutions .....	6
<b>9. Acronyms</b> .....	<b>6</b>





## 1. INTRODUCTION

The HDMI 4K UHD Enhancer is an advanced solution for extending or cascading an HDMI signal. It is designed to amplify and equalize the signal to provide high performance transfer of audio and video through HDMI cable for distance up to 10 meters at 4K2K@60Hz (YUV420) and can be cascaded up to 5 layers and is capable of receiving and transmitting up to 3Gbps bandwidth rate with CDR (Clock Data Recovery) to ensure no loss of data. This unit can be powered by the HDMI output of suitability equipped source device (eliminating the need for a power supply) or an HDMI Power Inserter can be used.

## 2. APPLICATIONS

- Custom installation usage
- Cascade an HDMI signal
- Extend the operating distance of an HDMI system

## 3. PACKAGE CONTENTS

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

## 4. SYSTEM REQUIREMENTS

HDMI source device and HDMI equipped output display (TV/monitor) with HDMI connection cables.

## 5. FEATURES

- HDMI, HDCP 2.2 and DVI 1.1 compliant
- Built-in TMDS equalization and CDR (Clock Data Recovery) for extending operating distances over HDMI cables
- Supports resolutions up to 4K2K@50/60 (YUV420) and 21:9 aspect ratio
- Supports HDMI input or output cable lengths up to 10 meters at 4K2K@50/60 (YUV420) resolution
- Supports cascading of the HDMI signal to up to 5 layers
- Requires the HDMI source device to output power to the unit over HDMI cable
- Compact design

### Note:

1. *Testing was done with 24AWG HDMI cable, results may vary when used with different source devices or different specification cable and may affect overall cable distance and cascadable layers.*
2. *For HDMI source devices that do not support Power over Cable (PoC) an HDMI Power Inserter unit can be used in-line between the source device and the HDMI Enhancer unit.*

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 HDMI Dongle



#### 1 HDMI IN

Connect the HDMI input to the HDMI output of an source device such as a Blu-ray player or an HDMI Matrix/Splitter/Switcher. The unit can be directly powered by compatible HDMI source devices that provide power through the HDMI cable or can be powered by an HDMI Power Inserter placed in-line between the source and the unit.

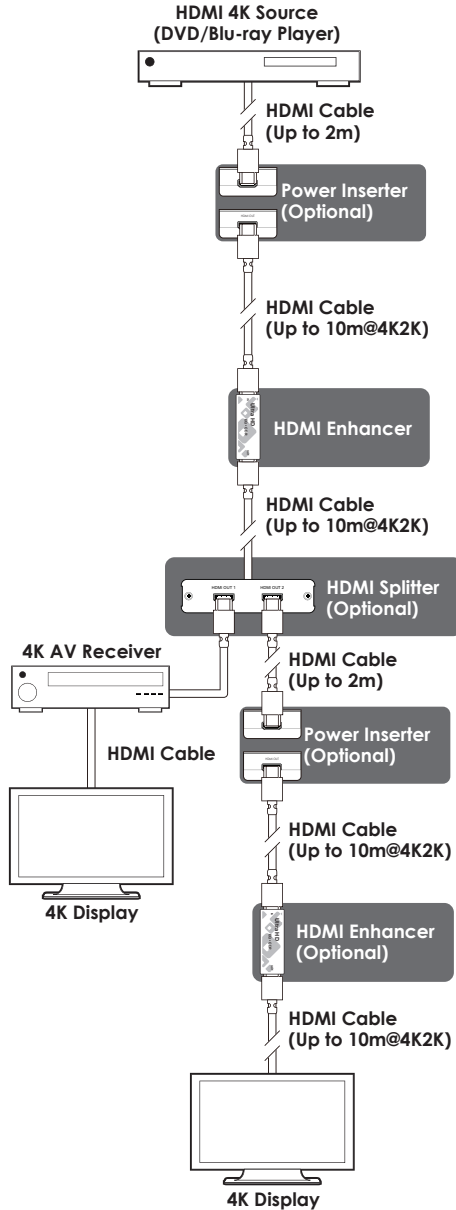
#### 2 HDMI OUT

Connect the HDMI output to the HDMI input of an HDMI equipped display (TV/monitor) or an HDMI Transmitter.

*Note: Multiple HDMI Enhancer units may be used (up to 5 layers) to cascade the signal over longer distances. Additional HDMI Power Inserter units will be required. It is recommended that an HDMI Power Inserter unit is used between the first and the second HDMI Enhancer units being used and on the last/5th layer before the connecton to TV or monitor/final HDMI equipped display.*



## 7. CONNECTION DIAGRAM





## 8. SPECIFICATIONS

### 8.1 Technical Specifications

<b>Video Bandwidth</b>	340MHz/10.2Gbps
<b>Input Port</b>	1×HDMI
<b>Output Port</b>	1×HDMI
<b>Resolution</b>	PC: VGA~WUXGA (RB) HDTV: 480i~4K2K@24/25/30 & 4K2K@50/60 (YUV420)
<b>Cable Distance</b>	10m@4K2K 15m@1080p/8-bit or 12-bit
<b>ESD Protection</b>	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Dimensions</b>	65mm (W)×24mm (D)×9.5mm (H)
<b>Weight</b>	14g
<b>Chassis Material</b>	Plastic
<b>Color</b>	Black
<b>Operating Temperature</b>	0°C~40°C/32°F~104°F
<b>Storage Temperature</b>	-20°C~60°C/-4°F~140°F
<b>Relative Humidity</b>	20~90 % RH (non-condensing)
<b>Power Consumption</b>	0.75 W (Max)

## 8.2 Supported Resolutions

RESOLUTION	INPUT	OUTPUT
640×480@60/72/75/85	√	√
800×600@56/60/72/75/85	√	√
1024×768@60/70/75/85	√	√
1280×720@60	√	√
1280×1024@60	√	√
1600×1200@60	√	√
1920×1200@60RB	√	√
3840×2160p@24/25/30	√	√
4096×2160p@24	√	√
4096×2160p@50/60 (YUV420)	√	√
480i/576i	√	√
480p/576p	√	√
720p@50/60	√	√
1080i@50/60	√	√
1080p@50/60	√	√
1080p@24/25/30	√	√

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
CDR	Clock Rate Recovery
EQ	Equalization
HDMI	High-Definition Multimedia Interface
TMDS	Transition-minimised Differential Signaling
UHD	Ultra High Definition



**CYPRESS TECHNOLOGY CO., LTD**  
Home page: <http://www.cypress.com.tw>

20141020 MPM-CPROUHH-