



## CPRO-SE2DD

HDMI Audio Converter with Dolby® Digital / DTS®  
2.0+Digital Out Decoder



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 2012 by Cypress Technology.

All Rights Reserved.

Version 1.0 January 2012

## TRADEMARK ACKNOWLEDGMENTS

All products or service names mentioned in this document may be trademarks of the companies with which they are associated. Manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

Manufactured under license under U.S. Patent Nos: 5,956,674; 5,974,380; 6,487,535 & other U.S. and worldwide patents issued & pending. DTS, the Symbol, & DTS and the Symbol together are registered trademarks & DTS 2.0+Digital Out is a trademark of DTS, Inc. Product includes software. © DTS, Inc. All Rights Reserved.





## 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	11/12/14	Preliminary Release

## 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 Front Panel .....	3
6.2 Rear Panel.....	4
<b>7. Connection Diagram</b> .....	<b>5</b>
<b>8. Specifications</b> .....	<b>6</b>
<b>9. Acronyms</b> .....	<b>9</b>



## 1. INTRODUCTION

HDMI Audio Converter with Dolby® Digital / DTS® 2.0+Digital Out Decoder allows an HDMI input audio signal to be extracted and simultaneously split to both digital and analog audio output. Eliminating audio termination or stuttering sound on enjoyment of audio entertainment world. This device allows you to maximize your audio signal to different external speakers or extend it to a various audio signal pathway.

## 2. APPLICATIONS

- Home entertainment installation
- Audio extraction & Extension
- Non-HDMI AV receivers or wider audio systems

## 3. PACKAGE CONTENTS

- HDMI Audio Converter with Dolby® Digital / DTS® 2.0+Digital Out Decoder
- 5V/2.6A Power Adaptor
- Operational Manual

## 4. SYSTEM REQUIREMENTS

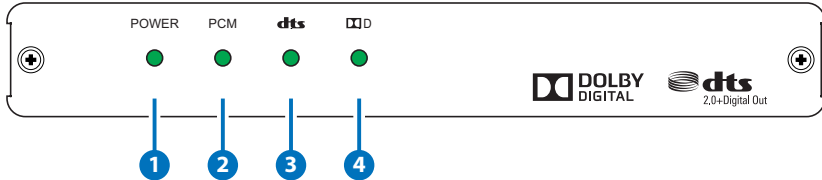
HDMI equipped source device and display (TV/monitor) and/or amplifier/active speakers with connection cables.

## 5. FEATURES

- Dolby Digital Decoder technology embedded
- DTS 2.0+Digital Out technology embedded
- Integrated digital interpolator filter and Digital-to-Analog Converter (DAC)
- Supports LPCM input sampling rate up to 96kHz and 2-CH output at 48kHz
- Support Dolby® Digital/DTS® sampling rate up to 48kHz
- Supports simultaneous audio outputs on HDMI, analog R/L, Coaxial and Optical
- HDMI (with 3D & 4K2K supported) and HDCP compliant
- Supports HDTV resolutions up to 4Kx2K (3840x2160@24/25/30, 50/60 YUV\_420 & 4096x2160@24, 50/60 YUV\_420)
- Supports HDMI data rate from 300Mbps to 3Gbps and 'Deep Color' up to 1080p/36-bit

## 6. OPERATION CONTROLS AND FUNCTIONS

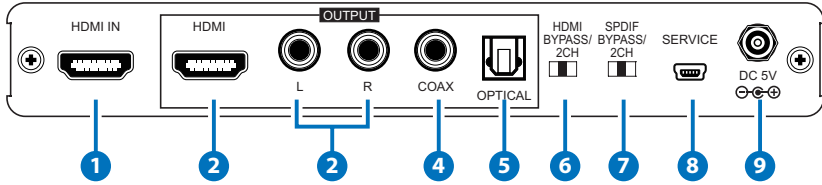
### 6.1 Front Panel



- 1 POWER:** This LED will illuminate in green when the device is connected with power supply.
- 2 PCM LED:** This LED will illuminate when the input audio source is with PCM format.
- 3 DTS LED:** This LED will illuminate when the input audio source is DTS 2.0+Digital Out encoded.
- 4 Dolby LED:** This LED will illuminate when the input audio source is Dolby Digital encoded.

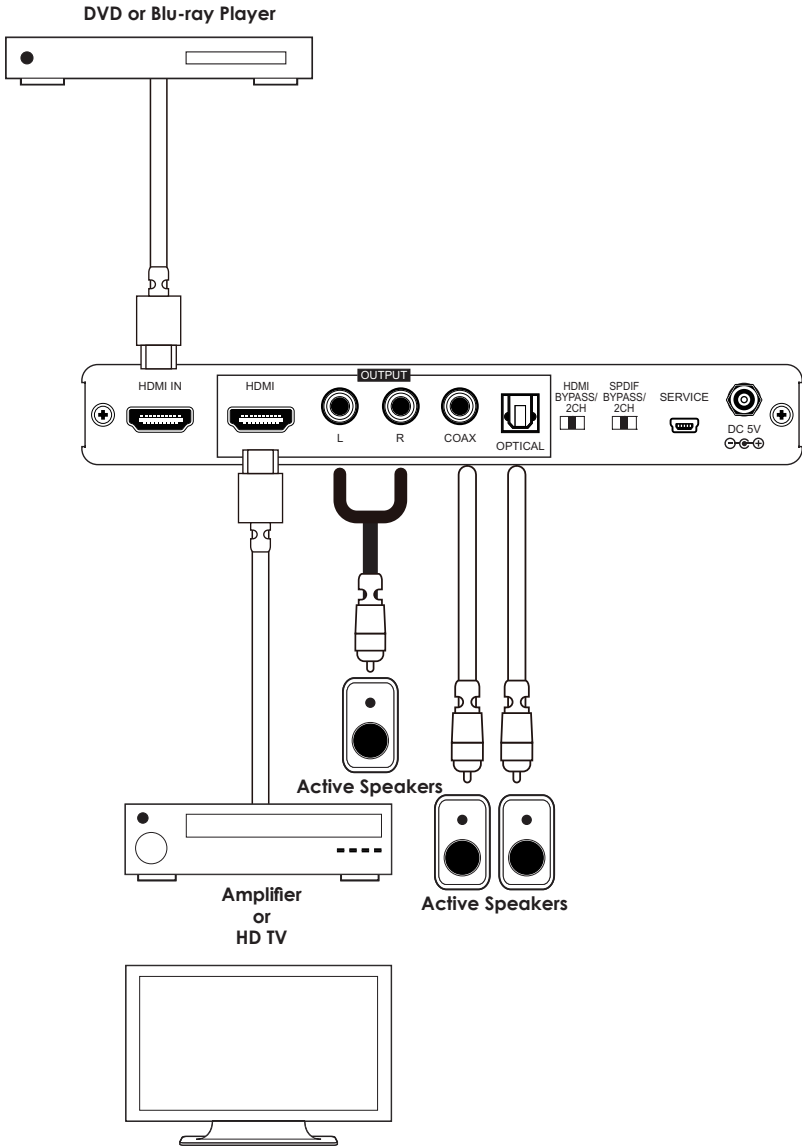


## 6.2 Rear Panel



- 1 HDMI IN:** Connect from source equipment such as Blu-ray/DVD/ PS3 players, Set-Top-Box or any HDMI equipped source device for input signal sending.
- 2 HDMI OUTPUT:** Connect to HDMI TV/display or HD Amplifier for output image and or audio display.
- 3 L/R OUTPUT:** These slots are to connect with analog output speaker through banana jack cables for audio signal output from HDMI.
- 4 COAX OUTPUT:** This slot is to connect with digital output speaker through Coaxial cable.
- 5 OPTICAL OUTPUT:** This slot is to connect with digital output speaker through optical cable
- 6 HDMI BYPASS/2CH:** HDMI BYPASS/2CH: For the HDMI output port, switch to BYPASS to allow audio pass-through from HDMI input port; switch to 2CH to enable audio decoding and 2-channel down-mixing for Dolby Digital or DTS audio signals from HDMI input port.
- 7 SPDIF BYPASS/2CH:** For the COAX and OPTICAL output ports, switch to BYPASS to allow audio pass-through from HDMI input port; switch to 2CH to enable audio decoding and 2-channel down-mixing for Dolby Digital or DTS audio signals from HDMI input port.
- 8 USB:** This slot is reserved for firmware update use only.
- 9 DC 5V:** Connect the adaptor included in the package and connect to AC wall outlet for power supply.

## 7. CONNECTION DIAGRAM



## 8. SPECIFICATIONS

<b>Video Bandwidth</b>	300MHz / 9Gbps
<b>Input Ports</b>	1 x HDMI 1 x USB (Service Only)
<b>Output ports</b>	1 x HDMI 1 x R/L 1 x Coaxial 1 x Optical
<b>Power Supply</b>	DC 5V/2.6A (US/EU standards, CE/FCC/ UL certified)
<b>ESD Protection</b>	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
<b>Dimensions</b>	180mm (W) x 104mm (D) x 25mm (H)/ Jacks Excluded 180mm (W) x 110.75mm (D) x 25mm (H)/ Jacks Included
<b>Weight</b>	368 g
<b>Chassis Material</b>	Metal
<b>Silkscreen 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>	2.5W



## Video Supports Specification:

DVI and HDMI Supported Resolutions	Input	Output
640x480@60	✓	✓
640x480@72	✓	✓
640x480@75	✓	✓
720x480@60	✓	✓
720x576p@50	✓	✓
800x600@60	✓	✓
800x600@72	✓	✓
800x600@75	✓	✓
1024x768@60	✓	✓
1024x768@70	✓	✓
1024x768@75	✓	✓
1280x720@50	✓	✓
1280x720@60	✓	✓
1280x720p@60	✓	✓
1280x768@60	✓	✓
1280x800@60	✓	✓
1280x1024@60	✓	✓
1360x768@60	✓	✓
1600x1200@60	✓	✓
1920x1080i@50	✓	✓
1920x1080i@60	✓	✓
1920x1080p@24	✓	✓
1920x1080p@25	✓	✓
1920x1080p@30	✓	✓
1920x1080p@50	✓	✓
1920x1080p@60	✓	✓
1920x1200@60(RB)	✓	✓

DVI and HDMI Supported Resolutions	Input	Output
3840x2160@24/25/30	V	V
3840x2160@50/60_YUV420	V	V
4096x2160@24/25/30	V	V
4096x2160@50/60_YUV420	V	V

### Audio Specifications:

IN	OUT	Output	Output Level	T.H.D+N (A-Weight)	Frequency Response	SNR	Crosstalk
HDMI 0dBFS	HDMI		0 dBFS	<0.00001%	±1dBFS	>140dB	<-160dB
	Optical		0 dBFS	<0.00001%	±1dBFS	>140dB	<-160dB
	Coaxial		0 dBFS	<0.00001%	±1dBFS	>140dB	<-160dB
	Line-Out		2Vrms +0.1	<0.006%	±1dB	>100dB	<-110dB

### Input Audio to Output Audio Chart:

Audio Input	Input Format	Audio Output				
		Analog L/R	HDMI		SPDIF(Optical - Coaxial)	
			Switch Status		Switch Status	
			BYPASS	2CH	BYPASS	2CH
HDMI	LPCM 2CH	Analog 2CH	LPCM 2CH	LPCM 2CH	LPCM 2CH	LPCM 2CH
	Dolby Digital	Decoding Lt/Rt	Bitstream Pass-through	LPCM 2CH	Bitstream Pass-through	LPCM 2CH
	DTS	Decoding Lt/Rt	Bitstream Pass-through	LPCM 2CH	Bitstream Pass-through	LPCM 2CH

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
DTS	Digital Theater System
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
LCM	Liquid Crystal Monitor
USB	Universal Serial Bus
VGA	Video Graphics Array
WUXGA	Wide Ultra Extended Graphics Array





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

MPM-CPROSE2DD