



CPRO-3D42S
4 by 2 HDMI Switcher with HEAC



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
VS1	09/02/12	First Release
VR2	06/03/12	CEC function on output 1 only
VR3	13/12/12	Testing Model





CONTENTS

1. Introduction	1
2. Applications	1
3. Package Contents	1
4. System Requirements	1
5. Features	2
6. Operation Controls and Functions	3
6.1 Front Panel	3
6.2 Rear Panel.....	4
6.3 Remote Control.....	5
6.4 RS232 Protocol and Command.....	6
7. Connection Diagram	7
8. Specifications	8
9. Acronyms	9





1. INTRODUCTION

This is a high performance HDMI™ Switcher with four HDMI inputs & two outputs HDMI™ Switcher, the output ports support Audio Return Channel (ARC) from a compatible ARC TV and HDMI Ethernet Channel (HEC) following the HDMI specification.

The HDMI Switcher provides an S/PDIF link from the HDMI signal and output through the ARC port to an AVR amplifier to get audio from the sink.

The HEC feature adds a network connection to the HDMI link 100Mbps Ethernet connection. Using an HDMI with HEAC cable allows for the convenient integration of internet capable HEAC Televisions into the end user's home network system.

2. APPLICATIONS

- Simultaneously display a HDMI source on 2 TVs/displays
- Connect internet capable devices through HEC to network routers/modems
- Connect network attached media streaming devices to compatible HEAC TV
- Showroom displays
- Educational demonstrations
- Commercial usage

3. PACKAGE CONTENTS

- 4 × 2 HDMI Switcher with HEAC
- 5V/2.6A DC power supply adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

- Source equipment with HDMI output connector(s)
- Displays TV with HDMI HEAC input connector(s)



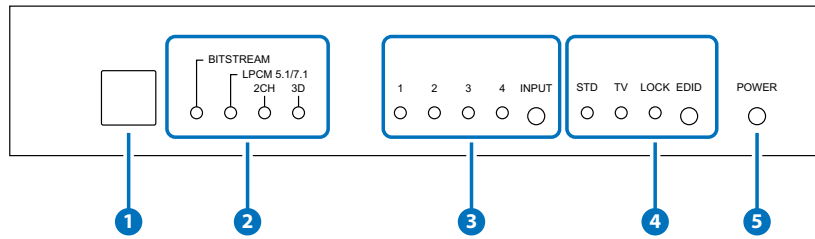
5. FEATURES

- Supports multiplexed HDMI 4-input and 2-output
- Two output ports supporting Ethernet Channel (HEC) and Audio Return Channel (ARC) following the HDMI specification
- HDMI supports:
 - Audio Return Channel (ARC)
 - 3D
 - HDMI Ethernet Channel (HEC), enabling high-speed, bi-directional networking at up to 100Mb/sec
- Deep Color support 36/30/24-bit
- EDID options include Standard, TV or Lock EDID feature
- Supports CEC bypass on HDMI OUT 1
- Audio support:
 - HDMI compatible audio interface
 - S/PDIF pass through



6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1 IR Remote Control Sensor

2 Audio/3D Content Indicator

The system will automatically detect incoming audio/video signal type and the green LEDs will illuminate accordingly.

3 Input Selection

Press input button to select input source, the Blue LED will illuminate accordingly. If none of the LEDs are illuminated then no input has been selected, this is to allow the device to access the ARC feature alone.

4 EDID Selection

The EDID control button selects between using the EDID from the display attached to Output 1/TV or using the onboard EDID/STD (the Green LED will illuminate accordingly).

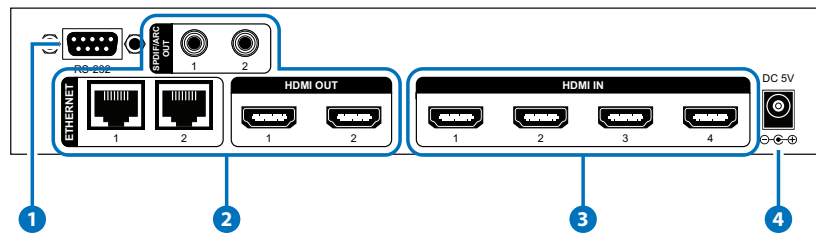
When the EDID button is pressed for longer than 3 seconds, the RED LED will illuminate to indicate that the EDID is already locked to STD or TV EDID as you selected accordingly. When EDID is set on STD audio will support PCM 2CH, video modes supported are listed in the table above.

	8	10	12
RGB	✓	✓	✓
Y444	✓	x	x
Y422	✓	/	/
XvYCC	✓	x	x

5 Power Button

Press this button to switch on the device or press it again to set it to standby mode.

6.2 Rear Panel



1 RS-232

This slot is to connect with a PC or control system with D-sub 9pin cable for RS-232 control. For detail RS-232 commands please refer to Section 6.4.

2 HDMI OUT 1~2/ARC 1~2/ETHERNET 1~2

HDMI/HEAC equipped TVs or displays will pass the Ethernet and Audio signals via HDMI cable back to the HDMI Output port, the splitter will separate the Ethernet and audio, and will output audio from the ARC and bi-directional data streams through the Ethernet ports. If the display has a built-in tuner or an attached DVD player, audio content can be sent "upstream" from the TV back to the audio system to be output in multi-channel audio.

The HDMI Switcher can use the HDMI Ethernet Channel (HEC) to consolidate video, audio and data streams into a single HDMI cable connection to an Ethernet Hub/modem in order to access the internet and also incorporates a dedicated data channel into the HDMI link, enabling high-speed, bi-directional networking at up to 100Mb to control and search from the sink (please see Section 6 for connection diagram). The HDMI output number is corresponding to ARC and Ethernet output number.

Note 1: Be sure to connect devices with a suitable HDMI cable designed to support the Ethernet Channel functionality, either the standard HDMI cable with Ethernet or High Speed HDMI cable with Ethernet.



Note 2: When the HDMI output has both Audio and ARC at the same time the ARC will be the prioritized.

3 HDMI INPUT 1~4

Connect to HDMI or DVI sources equipment such as DVD player or set-top-box for input video and audio sending.

Note A: This system was tested with 24 AWG cables. If using cables of another specification, the performance of this system may vary.

Note B: Cable distance tested with a Sony PS3 and 40" Samsung UA40B700 12-bit LED TV.

Note C: Figures provided in this manual are for reference only, actual figures may vary depending on the source equipment and display being used along with the type of cables and their specifications.

4 Power

Plug the DC 5V power supply into the unit and connect the adaptor to an AC wall outlet.

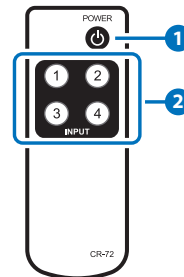
6.3 Remote Control

1 Power button

Press to switch On the device, press it again to set the device in standby mode.

2 INPUT 1~4

Press the desire input button to select the input source.



6.4 RS232 Protocol and Command

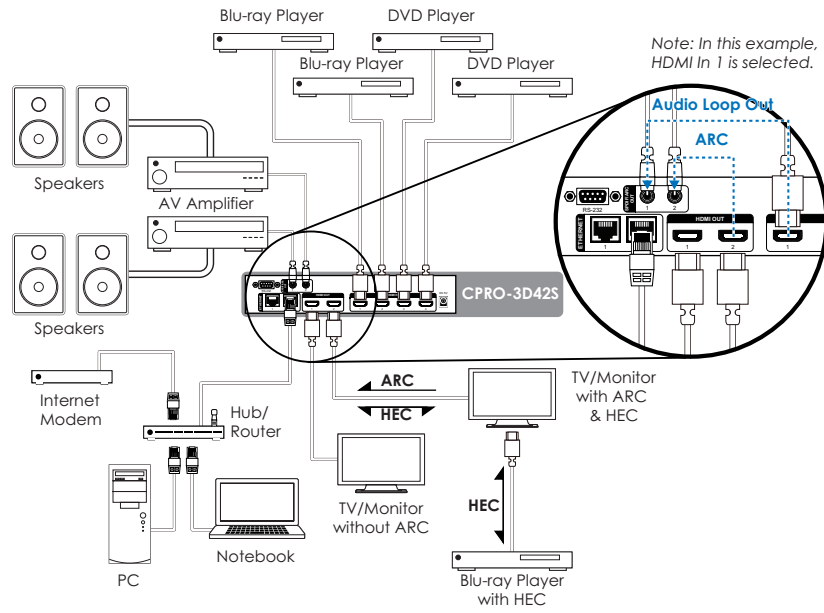
CPRO-3D42S		Remote Control Console	
PIN	Definition	PIN	Definition
1	NC	1	NC
2	Tx	2	Rx
3	Rx	3	Tx
4	NC	4	NC
5	GND	5	GND
6	NC	6	NC
7	NC	7	NC
8	NC	8	NC
9	NC	9	NC

Baud Rate: 9600 bps
 Data bit: 8-bits
 Parity: None
 Stop bit: 1-bit
 Flow Control: None

Command	Action
POWER 00	Power Off (standby)
POWER 01	Power On
PORT 11	Output Select Input 1
PORT 12	Output Select Input 2
PORT 13	Output Select Input 3
PORT 14	Output Select Input 4
PORT 00	No Input Selection (for ARC)



7. CONNECTION DIAGRAM





8. SPECIFICATIONS

Video Bandwidth	225MHz/6.75Gbps
Input Ports	4 × HDMI (Female type)
Output Ports	2 × HDMI (Female type) 2 × Ethernet 2 × ARC
Output Resolution	480i ~1080p50/60, 1080p24, VGA~UXGA
HDMI Cable In	1080p/8-bits or 12-bits (15m)
HDMI Cable Out	1080p/8-bits or 12-bits (15m)
ESD Protection	Human Body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Power Supply	5V/2.6A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	240mm (W) × 113mm (D) × 49mm (H)
Weight	810g
Chassis Material	Metal
Silkscreen 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	4.2W



9. ACRONYMS

ACRONYM	COMPLETE TERM
ARC	Audio Return Channel
CEC	Consumer Electronics Control
EDID	Extended Display Identification Data
HEAC	HDMI Ethernet & Audio Return Channel
HEC	HDMI Ethernet Channel
HDCP	High-bandwidth Digital content protection
HDMI	High-Definition Multimedia Interface



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