



CDPS-44SM

HDMI 4×4 Seamless Quad Matrix



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 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.

REVISION HISTORY

VERSION NO.	DATE DD/MM/YY	SUMMARY OF CHANGE
RDV1	19/03/13	Preliminary Release
RDV2	17/04/13	
VS1	23/05/13	Updated format/diagrams



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1. INTRODUCTION

This 4 by 4 HDMI Seamless Matrix is an advanced 4 Way HDMI switch with integrated Multi-view POP (Picture -out-of Picture) technology. This plug and play solution offers advanced control and display options for the integration of 4 sources onto 4 displays. It provides 3 output modes, Matrix, Dual and TV Wall. Matrix mode can route and switch just like a normal matrix, the Dual mode allows 2 sets of 2 selected sources to be displayed in a Picture-out-of-Picture configuration and the TV Wall mode displays a selected source over 4 displays as if it were a single video image.

The device supports resolutions up to WUXGA@60 (RB) and 1080p@60Hz, audio formats up to 7.1CH LPCM at 192kHz sampling rate based on the source EDID. It has the added benefit of control through IR, remote control, Telnet/IP, RS-232 or front panel buttons.

2. APPLICATIONS

- Broadcasting control room
- Surveillance control room
- Public advertisement displays
- HDMI Input extending
- Video Wall Systems

3. PACKAGE CONTENTS

- 1 × 4 by 4 HDMI Seamless Matrix
- 1 × Remote Control (CR-125)
- Software CD Driver (Optional)
- 1 × 12V/3A DC Power Adaptor
- Operation Manual

4. SYSTEM REQUIREMENTS

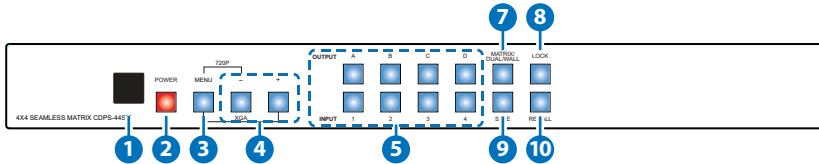
Input source equipment such as DVD/Blu-ray players or any video signal and PC/Notebook devices and output HD TV/monitor.

5. FEATURES

- HDMI, HDCP1.1 and DVI compliant
- Supports Deep Color 8/10/12 bit
- Seamless switching of HDMI sources
- Supports three different display modes: Matrix, Dual, Video Wall
 - *Matrix mode*: Can seamlessly switch between and output from any 4 sources to any 4 displays, as per a normal matrix switch
 - *Dual mode*: Can display a POP (Picture-out-of-Picture) image combined from 2 sources to be presented on the HDMI output ports (Dual A and Dual B)
 - *Video Wall mode*: Can split a single source to 4 displays e.g a 2 by 2 Video wall as a full image with adjustable Bezel Correction
- Supports control via On-screen Display (OSD), RS232, Telnet (IP), IR Remote control and on-panel controls
- Supports Input resolutions of VGA~WUXGA and 480i~1080p
- Supports Output resolutions of 480p~1080p
- Supports different input resolution and output resolution selectable from the OSD menu. The default setting for the output resolution is 720p@60 Hz/2CH LPCM
- Supports High definition Audio formats: LPCM 2CH/6CH/8CH, Dolby Digital, DTS, Dolby Digital Plus, Dolby TruHD and DTS-HD Master Audio

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1 IR Window: Accepts the IR signal from the supplied remote control.

2 POWER: Press to turn the unit ON or to put it into standby mode.

Note: Press and hold the POWER while connecting the power supply to reset the system to the default settings.

3 MENU: Press this button to bring up the On-screen Display (OSD) menu on screen.

Note: Press the MENU button simultaneously with the '-' (MINUS) button to immediately switch the output resolution to 720p@60Hz. Press the MENU button with simultaneously '+' (PLUS) button to immediately switch the output resolution to XGA (1024×768@60Hz).

4 Plus or Minus (-/+) Buttons: Press these buttons to navigate down/up the OSD then press the MENU' button to confirm.

5 CHANNEL INPUT 1/2/3/4 and CHANNEL OUTPUT A/B/C/D:

Matrix mode:

1) Press the 'MATRIX/DUAL/WALL' button to switch to Matrix mode. The LED will stay lit when in this mode.

2) Press an output from A/B/C/D and then press the corresponding input (from 1/2/3/4).

For example, press output A then press input 1, output A will switch to input 1 and display the signal. The setting for each output must be set individually.

Dual mode: Combines 2 sources to be presented on each of the HDMI outputs (Dual A and Dual B). Dual Group A are outputs A and B combined, Dual group B are outputs C and D combined. Each group will output the same image simultaneously.

1) Press 'MATRIX/DUAL/WALL' button to switch to Dual mode. The LED will turn off when in this mode.

2) Press the 'A' or 'B' output buttons and then press the required

input (1 or 2).

For example, press the output 'A' button then press the input 1 button, output A will display the video from input 1 on the left side of the screen, then press the output 'B' button and then press the button for input 2, output 'A' will display the video from input 2 on the right side of the screen. The video image will be identical for both output A and B.

3) Press button A or B for 3 seconds to switch the audio for Dual Group A between output A or B. Press button C or D for 3 seconds to switch the audio for Dual Group B between output C or D.

TV Wall mode:

1) Press the 'MATRIX/DUAL/WALL' button to switch to the TV Wall mode. The LED will blink constantly while in this mode.

2) Press input 1/2/3/4 to select a source to output to 4 displays (e.g. a 2 by 2 Video Wall).

3) The audio will be on output A only.

6 MATRIX/DUAL/WALL: Press to switch between Matrix mode, Dual mode and TV Wall mode. When in Matrix mode the LED will be lit constantly, when in DUAL mode the LED will not be lit and when in TV Wall mode the LED will blink.

7 LOCK: Press once to lock the keypad and remote control, press and hold for 3 seconds to release the lock function.

8 SAVE: Save the customized input and output settings.

1) Press 'Matrix/Dual/Wall' button to select the desired mode.

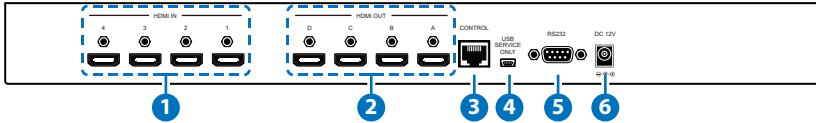
2) Press each output channel A/B/C/D and then press corresponding input channel 1/2/3/4 as required.

3) Press 'SAVE', the input 1/2/3/4 LEDs will light at the same time, then press one of the input 1, 2, 3 or 4 buttons to save the settings to the system memory.

For example, select Matrix mode, press output A then press input 4, then press 'SAVE'. This will correspond to the remote control FAV.1 to FAV.4 buttons.

9 RECALL: When in Matrix, Dual or Wall mode, press the 'RECALL' button, the input channel 1/2/3/4 LEDs will light at the same time. Select by pressing input channel 1, 2, 3 or 4 (or FAV1 to FAV4 on the remote control) to recall the customized screen settings.

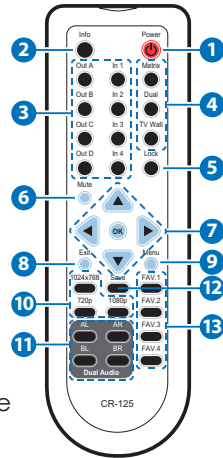
6.2 Rear Panel



- 1 HDMI IN 1/2/3/4:** Connect to HDMI source devices such as DVD/Blu-ray players or PCs/Laptops.
- 2 HDMI OUT A/B/C/D:** Connect with HDMI equipped displays such as HDTVs/Monitors.
- 3 CONTROL:** Connect to an active network for telnet control (Please refer to Section 6.6 for RS-232/Telnet).
- 4 USB SERVICE ONLY:** Reserved for manufacturer use only.
- 5 RS-232:** Connect to a PC/Laptop or RS-232 control system with a D-Sub 15pin cable to control the device with RS-232 commands (Please refer to Section 6.6 for RS-232/Telnet).
- 6 DC 12V:** Connect the 12V DC power supply to the unit and plug the adaptor into an AC outlet.

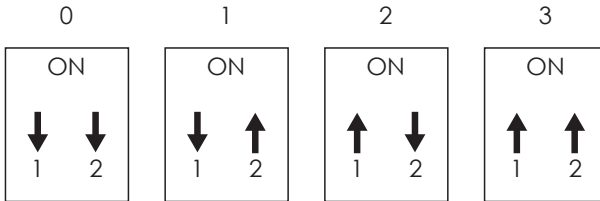
6.3 Remote Control

- 1 **Power:** Press to turn the unit ON or to put it into standby mode.
- 2 **Info:** Press this button to show the device's firmware version.
- 3 **Out A/B/C/D and In 1/2/3/4:** Press output A~D and then press input 1~4 to assign the display input. For example: press Out A then press In 1, output A will display the video from input 1.
- 4 **Matrix/Dual/TV Wall:** Press to switch between Matrix mode, Dual mode and TV Wall mode.
- 5 **Lock:** Press once to lock the keypad and remote control, press again and hold for 3 seconds to release the lock function.
- 6 **Mute:** Press this button to mute the audio from the HDMI output.
- 7 **▲/▼/◀/▶/OK:** Press these buttons to navigate the OSD menu and press OK to enter or confirm the settings.
- 8 **Exit:** Press this button to exit the OSD menu or the OSD settings.
- 9 **Menu:** Press this button to enter into the OSD menu.
- 10 **1024x768/720p/1080p:** Press the required button to switch to that resolution.
- 11 **Dual Audio AL/AR/BL/BR:** When in Dual mode, press these hot keys to switch the audio channel to the Left or Right side for Dual A and Dual B groups.
- 12 **Save:** To save the customized input and output settings.
 - 1) Press "Matrix/Dual/Wall" button to select the desired mode.
 - 2) Press each output channel A~D and then press corresponding input channel 1~4 as required.
 - 3) Press "SAVE", the input 1~4 LEDs will light at the same time, then press one of the input 1,2,3 or 4 buttons to save the settings to the system memory.
For example: Select Matrix mode, press output A then press input 4, then press "SAVE".
- 13 **FAV.1/2/3/4:** Press favorite key (1/2/3/4) to bring up the customized saved screen settings.



6.4 Remote Control Dip Switch

Open the Remote control back cover to adjust the dip-switch settings (ON/OFF) to match the IR address setting in the OSD menu. Default setting is 0.



6.5 RS-232 Protocols

HDMI SEAMLESS MATRIX			REMOTE CONTROL	
PIN	Assignment		PIN	Assignment
1	NC		1	NC
2	TxD		2	RxD
3	RxD		3	TxD
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: 115200bps

Data Bit: 8 bits

Parity: None

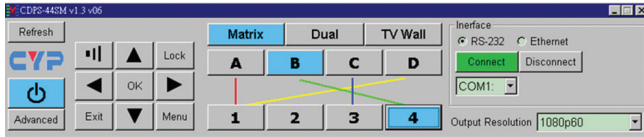
Flow Control: None

Stop Bit: 1

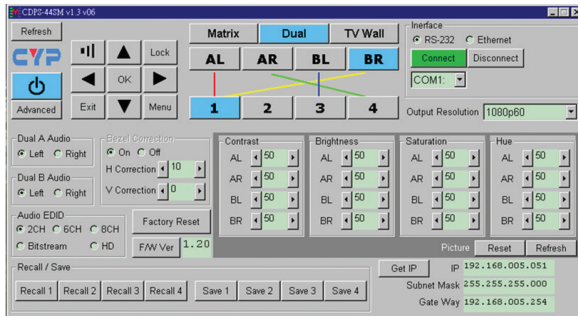
6.6 RS-232 and Telnet Control

Using PC software or Hyper terminal to configure the setting. This software application can be downloaded from the product website.

Simple-function Control Panel:



Full-function Control Panel:



Telnet Setting:

The device can be controlled through Telnet over TCP/IP. Use Port 23 for Telnet communication. The Telnet connection settings can be checked via the OSD menu or via RS-232 commands.

6.7 RS-232 and Telnet Commands

COM-MAND	DESCRIPTION	RESPONSE
AUA001	Dual A Audio channel in Left side	AUA001
AUA002	Dual A Audio channel in Right side	AUA002
AUA999	Check Dual A Audio channel status	AUA???
AUB001	Dual B Audio channel in Left side	AUB001
AUB002	Dual B Audio channel in Right side	AUB002
AUB999	Check Dual B Audio channel status	AUB???
AUD000	Audio output Off	AUD000
AUD001	Audio output On	AUD001
AUD999	Check Audio on/off status	AUD???
AUE000	Audio EDID is LPCM 2CH	AUE000
AUE001	Audio EDID is LPCM 6CH	AUE001
AUE002	Audio EDID is LPCM 8CH	AUE002
AUE003	Audio EDID is BITSTREAM	AUE003
AUE004	Audio EDID is HD	AUE004
AUE999	Check audio EDID setting	AUE???
BEZ000	BEZEL CORRECTION Off	BEZ000
BEZ001	BEZEL CORRECTION On	BEZ001
BEZ999	Check BEZEL CORRECTION on/off status	BEZ???
BEH???	Horizontal (H) Bezel Correction ???=000~Maximum	BEH???
BEH998	Check current Horizontal (H) Bezel Correction maximum value	BEH???
BEH999	Check current Horizontal (H) Bezel Correction setting value	BEH???

COM-MAND	DESCRIPTION	RESPONSE
BEV???	Vertical (V) Bezel Correction ???=000~Maximum	BEV???
BEV998	Check current Vertical (V) Bezel Correction maximum value	BEV???
BEV999	Check current Vertical (V) Bezel Correction setting value	BEV???
BRI???	BRIGHTNESS setting - Matrix mode: ???=000~100 - Dual/TV Wall mode: ???=(000~100)+200×(OUT No.-1 e.g. To set OUT B brightness value to 57, it is (57)+200×(2-1)=257	No response
BRI99?	Check current BRIGHTNESS value 99?=999 (Matrix mode) 99?=991~994=OUT1~4 (Dual/TV Wall mode)	BRI???
CAL???	Recall customized screen settings ???=001~004=FAV.1~4	CAL???
CON???	CONTRAST setting	No response
CON999	Command setting as BRI???	CON???
EGW999	Check current Ethernet GATEWAY address (RS-232 command only)	aaa.bbb. ccc.ddd
EIP999	Check current Ethernet IP address (RS-232 command only)	aaa.bbb. ccc.ddd
EMK999	Check current Ethernet SUBNET MASK address (RS-232 command only)	aaa.bbb. ccc.ddd
HUE???	HUE setting	No response
HUE999	Command setting as BRI???	HUE???

COM-MAND	DESCRIPTION	RESPONSE
INP???	INPUT selection???=001~004=IN 1~4 Execute OUT???	INP???
INP999	Check current INPUT	INP???
LCK000	Un-lock the keypad	LCK000
LCK001	Lock the keypad	LCK001
LCK999	Check current LOCK/UN-LOCK status	LCK???
MNE001	OSD Menu EXIT	No response
MND001	OSD Menu DOWN	No response
MNL001	OSD Menu LEFT (-)	No response
MNO001	OSD Menu OK	No response
MNR001	OSD Menu RIGHT (+)	No response
MNU001	OSD Menu UP	No response
MNX001	OSD Menu	No response
MOD001	Matrix mode	MOD001
MOD002	Dual mode	MOD002
MOD003	TV Wall mode	MOD003
MOD999	Check current output mode status	MOD???
OUT???	OUTPUT selection ???=001~004=OUT A~D	OUT???
OUT999	Check current OUTPUT	OUT???
PWR000	Power off (Standby)	PWR000
PWR001	Power on	PWR001
PWR999	Check current POWER status	PWR???
RES???	OUTPUT RESOLUTION setting ???=001~... corresponding to OSD menu	RES???
RES999	Check current OUTPUT RESOLUTION	RES???
RST001	FACTORY reset	RST001

COM-MAND	DESCRIPTION	RESPONSE
RST002	PICTURE reset	RST002
SAT???	SATURATION setting	No response
SAT999	Command setting as BRI???	SAT???
SAV???	Save customized screen settings ???=001~004=FAV.1~4	SAV???
VER999	Check FIRMWARE version e.g. VER110=V1.1	VER???

Note: Commands will be not executed unless followed with a carriage return (0x0D). Commands are case-sensitive.

6.8 OSD Menu

MAIN MENU	SUB MENU		ADJUSTMENTS	DEFAULT	
PICTURE¹	All	CONTRAST	0 ~ 100	50	
		BRIGHTNESS	0 ~ 100	50	
		SATURATION	0 ~ 100	50	
		HUE	0 ~ 100	50	
	Dual (D)	DUAL AL			
		DUAL AR			
		DUAL BL			
		DUAL BR			
	TV Wall (T)	OUT A			
		OUT B			
		OUT C			
		OUT D			
	D/T	RESET			
		RESET ALL			
	All	RESET ALL			
		EXIT			
	OUTPUT RESOLUTION	480p	1024×768		720p60
		576p	1280×800		
		720p50	1280×1024		
720p60		1366×768			
1080i50 ²		1440×900			
1080i60 ²		1600×900			
1080p24		1600×1200			
1080p50		1680×1050			
1080p60		1920×1200			
EXIT					

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
AUDIO EDID³	LPCM 2CH		LPCM 2CH
	LPCM 6CH		
	LPCM 8CH		
	BITSTREAM		
	HD		
	EXIT		
OSD SETTINGS	POSITION	LEFT T	LEFT T
		RIGHT T	
		LEFT B	
		RIGHT B	
	H OFFSET	0 ~ 20	10
	V OFFSET	0 ~ 20	10
	TRANSPARENCY	0 ~ 9	4
	MENU TIMEOUT	5 ~ 50	8
		OFF ⁴	
	INFO. TIMEOUT	5 ~ 50	8
		OFF	
	INFO. DISPLAY	ON	ON
		OFF	
	BRIEF INFO	ON	OFF
		OFF	
EXIT			
HDCP	INPUT ⁵	ACCEPT	ACCEPT
		NOT ACCEPT	
	OUTPUT ⁶	FOLLOW INPUT	FOLLOW INPUT
		ALWAYS ON	
	EXIT		

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
BEZEL CORRECTION⁷	CORRECTION	ON	OFF
		OFF	
	H CORRECTION	0 ~ By Output Resolution	0
	V CORRECTION	0 ~ By Output Resolution	0
	EXIT		
RECALL/SAVE⁸	RECALL	CANCEL	CANCEL
		FAV.1 ~ 4	
	SAVE	CANCEL	CANCEL
		FAV.1 ~ 4	
	EXIT		
ETHERNET	IP MODE	DHCP	DHCP
		STATIC	
	STATIC SET	IP	IP
		MASK	
		GATE	
	BYTE1		192
	BYTE2		168
	BYTE3		5
	BYTE4		155
	RE-LINK ⁹		
	TIMEOUT ¹⁰ (Min.)	5~60	10
OFF			
	EXIT		
OTHERS	IR ADDRESS ¹¹	0 ~ 3	0
	EXIT		

MAIN MENU	SUB MENU	ADJUSTMENTS	DEFAULT
FACTORY DEFAULT	YES		NO
	NO		
	EXIT		
INFORMATION¹²	IN/OUT RESOLUTION		
	SOURCE HDCP		
	AUDIO		
	OUT MODE		
	FIRMWARE VERSION		
	EXIT		
EXIT			

Note:

1. PICTURE:

- In Matrix mode, the settings for all four pictures are adjusted simultaneously.
- In Dual/TV Wall mode, the settings for each picture can adjusted individually and the last memory feature is supported individually .

2. OUTPUT RESOLUTION:

- The 1080i@50 and 1080i@60 output resolutions are supported in 'Matrix' mode only. When these output resolutions are used, Input Port 4 will not function and will not be selectable in the OSD Menu. In 'Dual' or 'TV Wall' modes these output resolutions are unavailable and can not be selected in the OSD menu.

3. AUDIO EDID:

- Embedded EDID for input audio:
- LPCM 2CH = LPCM 2CH
- LPCM 6CH = LPCM 2CH/ 6CH
- LPCM 8CH = LPCM 2CH/ 6CH/ 8CH
- BITSTREAM = LPCM 2CH, AC3, DTS
- HD = LPCM 2CH/ 6CH/ 8CH, AC3, DTS, Dolby Digital Plus, DTS-HD



4. MENU TIMEOUT:

- When switched to OFF, MENU and INFO will continue showing on the screen

5. HDCP INPUT:

- ACCEPT: Supports HDCP encrypted source (default setting)
- NOT ACCEPT: Does not support HDCP encrypted source. For example: Apple TV.

6. HDCP OUTPUT:

- FOLLOW INPUT: If the source has HDCP encryption the output will support HDCP. If the source does not have HDCP encryption the output will not support HDCP. If, when in Dual mode, either input (Left or Right) supports HDCP, the output will be HDCP encrypted.
- ALWAYS ON: When in this mode, all connected TV/Monitors need to support HDCP in order to avoid switching the sources from non-HDCP to HDCP, or flashing or blank image.

7. BEZEL CORRECTION:

- TV Wall mode only. After adjustment the settings are stored in the last memory function.

8. RECALL/SAVE:

- To SAVE or RECALL the input/output settings, the system supports last memory function to save all the setting.

9. Ethernet RE-LINK:

- After the setup, use the RE-LINK option in the OSD menu to re-connect the system again.

10. Ethernet TIMEOUT:

- Select OFF to cancel the time out function. When no Telnet commands are received within the time limit set in the TIMEOUT setting the telnet system will be terminated.

11. IR ADDRESS:

- This setting should correspond to the dip switch setting on the IR remote control (please refer to section 6.4).

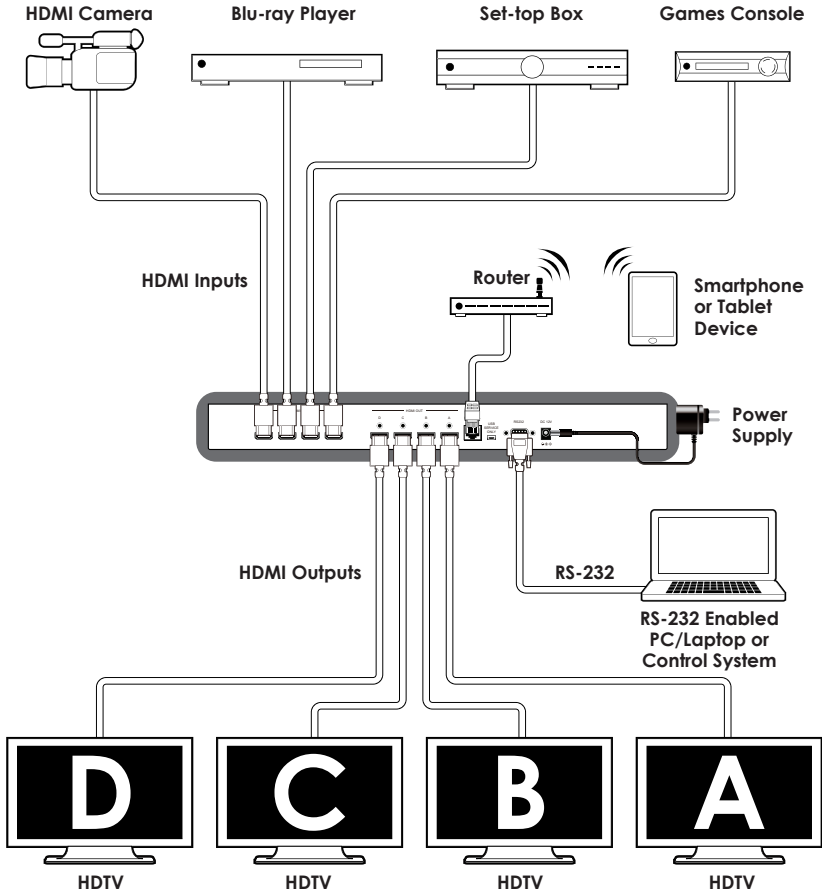
12. INFORMATION:

- Shows the settings/information for the Input/Output/Audio/Mode/Firmware version.

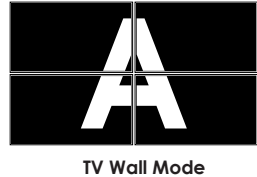
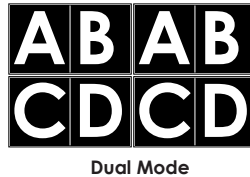
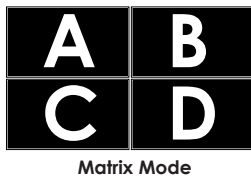
6.9 Resolution Supports

INPUT SUPPORT TIMING	OUTPUT SUPPORT TIMING
480i@59	480p@60
480p@60	576p@50
576i@50	720p@50
576p@50	720p@60
720p@25, 30, 50, 60,	1080i@50 (Matrix Mode Only)
1080i@50, 60	1080i@60 (Matrix Mode Only)
1080p@24, 25, 30, 50, 60	1080p@24
640×480@60, 72, 75, 85	1080p@50
720×400@70	1080p@60
800×600@56, 60, 72, 75, 85	1024×768@60
1024×768@60, 70, 75, 85	1280×800@60
1152×864@70, 75	1280×1024@60
1280×720@60 (CVT)	1366×768@60
1280×768@60 (RB), 60, 75	1440×900@60
1280×800@60 (RB), 60, 75	1600×900@60 (RB)
1280×1024@60, 60(CVT), 75	1600×1200@60
1360×768@60	1680×1050@60
1366×768@60 (RB), 60	1920×1200@60 (RB)
1400×1050@60 (RB), 60	
1440×900@60 (RB), 60, 75	
1600×900@60 (RB)	
1600×1200@60	
1680×1050@60 (RB),60	
1920×1200@60 (RB)	

7. CONNECTION DIAGRAM



Screen Configurations:



8. SPECIFICATIONS

Video Bandwidth	225MHz/6.75 Gbps
Input Ports	4×HDMI (Female) 1×USB (Service only)
Output Ports	4×HDMI (Female)
Power Supply	12 V/3 A DC (US/EU standards, CE/FCC/ UL certified)
ESD Protection	Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge)
Dimensions	432 mm (W)×247 mm (D)×44 mm (H)
Weight	2200 g
Chassis Material	Aluminum
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	15 W

9. ACRONYMS

ACRONYM	COMPLETE TERM
CAT5e	Category 5 Cable
CAT6	Category 6 Cable
CEC	Consumer Electronics Control
DVI	Digital Visual Interface
HDCP	High-bandwidth Digital content protection
HDMI	High Definition Multimedia Interface
IR	Infrared



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Home page: <http://www.cypress.com.tw>