



**4K2K**



## **EL-41S-4K**

**4-Way HDMI Switcher with advanced EDID management,  
IP, RS-232, & IR Control (4K resolution support)**

**/// 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 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	SUMMARY OF CHANGE
v1.00	26/09/14	First release
v1.01	05/11/15	Amended features and description






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## **1. INTRODUCTION**

This 4 to 1 HDMI Switcher enables the user to switch between four HDMI sources which can be sent from the HDMI output to a AV receiver or HDMI display. With fast switching technology this device can greatly reduce the time taken for the display to show an image. It supports 4Kx2K, 3D, 36-bit Deep Color, Hi-Def. lossless audio. The management of source/sink scenarios can be operated easily through on-panel buttons, IR remote control, RS-232, Telnet and WebGUI control.

## **2. APPLICATIONS**

-  Home Theater/Entertainment
-  Lecture Room/Hall Presentation
-  Show Room/Demo Room
-  Public Commercial Display
-  Information Board

## **3. PACKAGE CONTENTS**

-  UHD 4 to 1 HDMI Switcher
-  Remote Control with Battery
-  IR Receiver Cable
-  5V/2.6A DC Power Adaptor
-  Operation Manual

## **4. SYSTEM REQUIREMENTS**

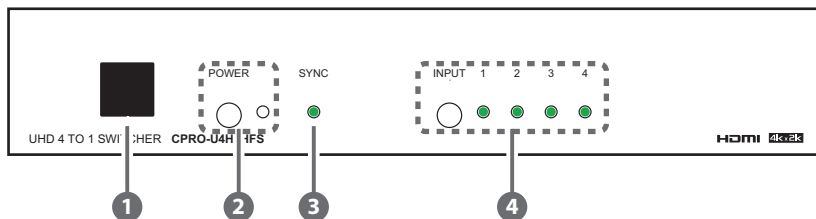
Input source equipment such as Blu-ray/DVD/PS3 player or Set-Top-Box and output HDMI TV/Display with connection cables.

## 5. FEATURES

- /// HDMI 1.4 (with 3D & 4K2K supported) and HDCP1.4 compliant
- /// Select any one of four HDMI sources for connection to an AV receiver or display with fast switching between each source selection.
- /// 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
- /// Supports selection of Standard (Fixed) or TV (Downstream) EDID settings
- /// Supports Audio pass-through of High-definition Audio formats (LPCM 2/5.1/7.1CH, Dolby Digital 2~5.1CH, DTS 2~5.1CH, Dolby TrueHD and DTS-HD Master Audio)
- /// HDMI inputs support 'Standard' and 'Apple' HDCP modes. Selecting 'Apple' mode guarantees the compatibility of Apple devices with this device
- /// Supports Telnet and WebGUI control

## 6. OPERATION CONTROLS AND FUNCTIONS

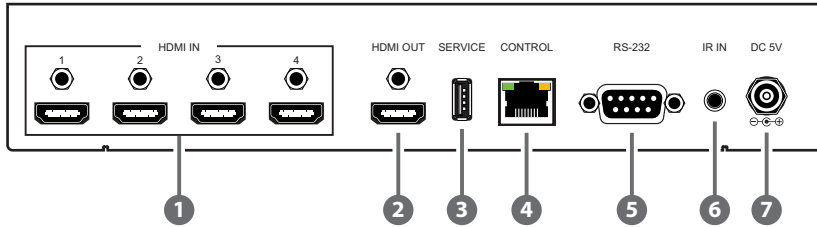
### 6.1 Front Panel



- ❶ **IR Window:** This IR Receiver receives the remote control signal from the included remote control only with IR frequency at 38kHz.
- ❷ **POWER & LED:** Press this button to turn ON the device or set the device to standby mode. The LED will illuminate in green when switch to ON. This device contains power last memory and therefore, when the power is connected the device will switch to ON/Standby according to the last status.  
  
**\*IP Reset:** Press this button simultaneously with the INPUT button for 3 seconds when the unit is powered on, when the LED blinks once it means the IP Reset is complete.
- ❸ **SYNC:** This LED will illuminate when both the input source and output display are linked with an active signal.
- ❹ **IN 1~4:** Press the INPUT button to select an input from the 4 input sources, LED will illuminate according to the selection.



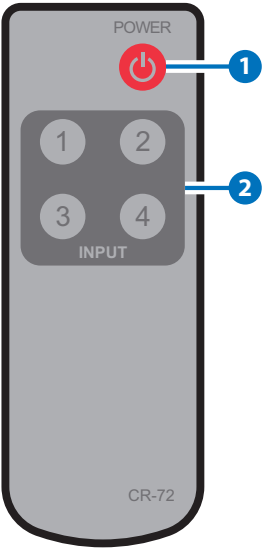
## 6.2 Rear Panel



- ❶ **HDMI IN:** Connect to HDMI source equipment such as Blu-ray/DVD/PS3 players, Set-Top-Box or any HDMI equipped source device. The device has an auto detection function that will detect the last connected source for display on output when it is unplugged, the device will detect rotationally from 1~4 input source for display on output.
- ❷ **HDMI OUT:** Connect to an HDMI TV/display or HDMI equipped AV Receiver for video/audio output of the selected source.
- ❸ **SERVICE:** This slot is reserved for firmware update use only.
- ❹ **CONTROL:** Connect to an active network for Telnet or WebGUI control with an RJ-45 terminated cable (see section 6.7).
- ❺ **RS232:** Connect to a PC/Laptop or RS-232 control device for RS-232 control of the device (see Section 6.4/6.5).
- ❻ **IR IN:** Connect the IR Receiver included in the package for IR signal reception from the included remote control. Ensure that the receiver is in direct line-of-sight of the the remote being used
- ❼ **DC 5V:** Connect the adaptor with power cord included in the package and connect to AC wall outlet for power supply.

6.3 Remote Control

- 1 **POWER:** Press this button to switch ON the device or to set it to standby mode.
- 2 **INPUT:** Press 1~4 to select input source.



6.4 RS-232 Pin Assignment

EL-41S-4K		<div>→</div> <div>←</div>	Remote Control	
PIN	Assignment		PIN	Assignment
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: 115200bps  
Data Bit: 8 bits  
Parity: None  
Flow Control: None  
Stop Bit: 1

## 6.5 RS-232 & Telnet Commands

Command Name	Description	Description of parameter
<b>P0</b>	Power Off (Standby)	NONE
<b>P1</b>	Power On	NONE
<b>A N</b>	Select Input N	N=1-4
<b>IPCONFIG</b>	Display The Current IP Configure	NONE
<b>SIPADDR XXX.XXX.XXX.XXX</b>	Set Ethernet IP Address	XXX=0~255
<b>SNETMASK XXX.XXX.XXX.XXX</b>	Set Ethernet Net Mask	XXX=0~255
<b>SGATEWAY XXX.XXX.XXX.XXX</b>	Set Ethernet Gateway	XXX=0~255
<b>HTTPPORT N</b>	Set Http Port Number	N=0~65535
<b>RSTIP</b>	IP Configuration Reset To <DHCP>	NONE
<b>EDIDMODE N</b>	Show EDID Mode	N=0(Appoint), 1(All)
<b>EDIDALL</b>	Show EDID Mode Source For All	NONE
<b>EDIDALL N</b>	Set EDID Mode Source For All	N=1-9
<b>EDIDIN</b>	Show Input EDID Source	NONE
<b>EDIDIN N1</b>	Show Input N1 EDID Source	N1=1-4
<b>EDIDIN N1 N2</b>	Set Input N1 EDID Source	N1=1-4 N2=1-9
<b>HDCPIN</b>	Input HDCP Status	NONE

<b>HDCPIN N1</b>	Show Input N1 HDCP Status	N1=1-4
<b>HDCPIN N1 N2</b>	Set Input N1 HDCP On/Off*	N1=1-4 N2=0(OFF), 1(ON)
<b>SOURCEDET</b>	Show All Input Signal	NONE
<b>SOURCEDET N1</b>	Show Input N1 Signal	N1=1-4
<b>SINKINFO</b>	Show All Output Information	NONE
<b>INNAME</b>	Show Input Name	NONE
<b>INNAME N1 N2</b>	Set Input N1 Name	N1=1-4
<b>N2=ABCDEFGH(Max Length=8)</b>		
<b>OUTNAME</b>	Show Output Name	NONE
<b>OUTNAME A N1</b>	Set HDMI Output Name	N1=ABCDEFGH(Max Length=8)
<b>VER</b>	Show Unit Firmware Version	NONE
<b>REBOOT</b>	System Reboot	NONE
<b>HELP (?)</b>	Show Command List	NONE
<b>HELP N</b>	Show Descript Of Command	N : COMMAND NAME
<b>FADEFAULT</b>	All Configure Set To Factory Default	NONE
<b>ETH_FADEFAULT</b>	All Ethernet Configure Set To Factory Default	NONE

**Note:**

1. All the RS-232 command will be not executed unless followed with a carriage return.  
Commands are case-sensitive.
2. \*HDCP ON/OFF equivalent to HDCP standard and Apple mode.
3. IP address's default setting is on statics with 192.168.5.88
4. To find IP address in your zone an easy application is provided, please download it from [http://zh-tw.cypress.com.tw/uploadfile/CDPS\\_20140806\\_v2000.zip](http://zh-tw.cypress.com.tw/uploadfile/CDPS_20140806_v2000.zip)

## 6.6 EDID Content

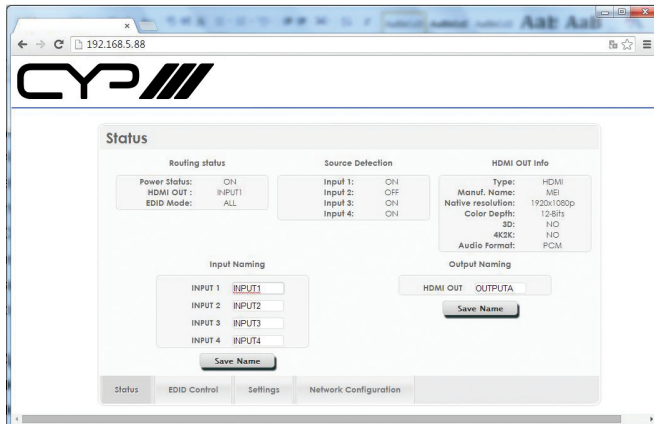
EDID Mode	EDID All	HDMI Output(TV)	HDMI Output display EDID
		8/2D/PCM/720p	Build-In EDID, Deep color/2D3D/audio/native resolution
		8/2D/PCM/AC3/720p	Same as above
		8/2D/PCM/1080p	Same as above
		8/2D/PCM/AC3/1080p	Same as above
		8/2D/PCM/4K2K	Same as above
		8/2D/PCM/AC3/4K2K	Same as above
		8/2D/PCM/Y420	Same as above
		8/2D/PCM/AC3/Y420	Same as above
	EDID Appoint	EDID IN1	Input 1's EDID
		EDID IN2	Input 2's EDID
		EDID IN3	Input 3's EDID
		EDID IN4	Input 4's EDID

**Note:**

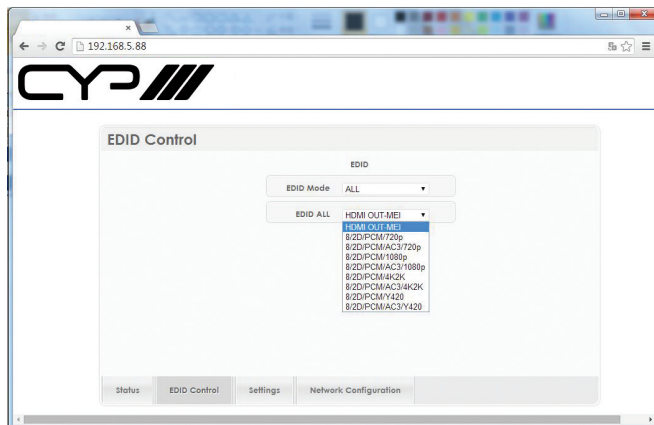
1. EDID function only selectable under RS-232 and WebGUI control.
2. When power supply is re-plugged from the device the EDID mode will switch to EDID All- HDMI OUTPUT.

## 6.7 WebGUI

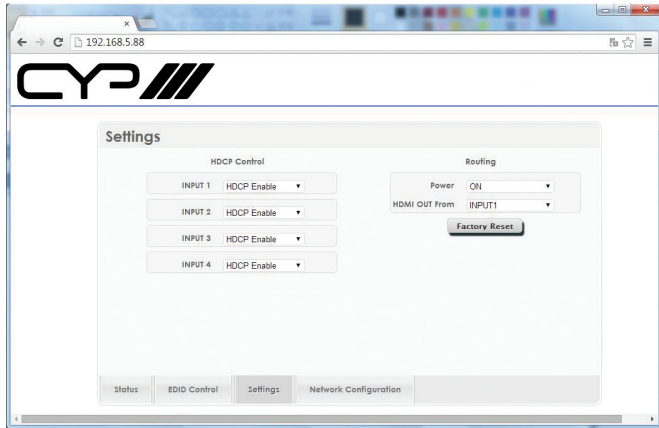
On a PC/Laptop that is connected to an active network system, open a web browser and type device's IP address (the default statics IP is 192.168.5.88 or available from RS-232 or use the link application from note 4 in section 6.5 to find) on the web address entry bar. The browser will display the device's Status, IO Status, Matrix Control, Settings and Network Configuration control pages for users to control.



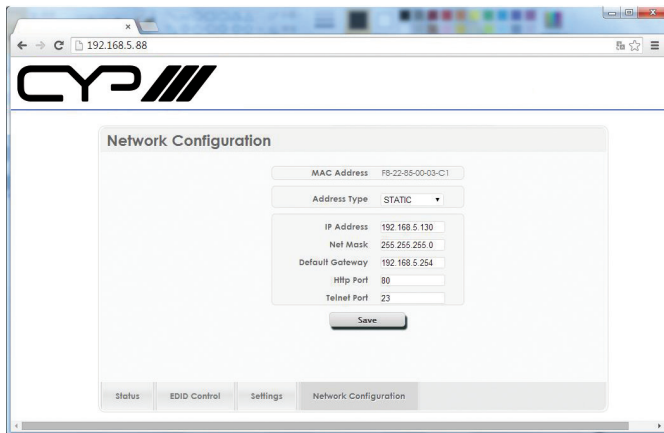
Click on EDID Control for EIDID selections.



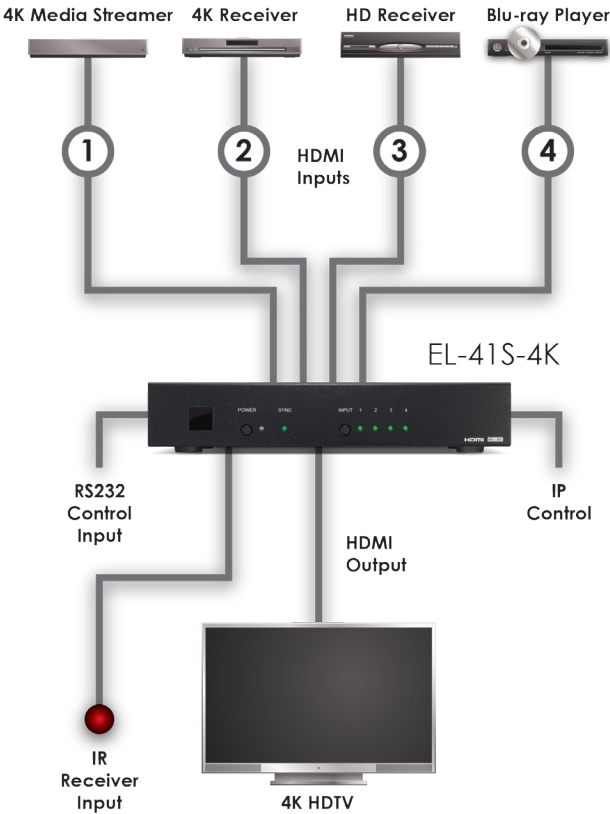
Click on Settings to set each input's HDCP Control and Preset Configuration. HDCP Enable and Disable equivalence to HDCP standard and Apple mode.



Click on Network Configuration to set the device's IP configuration once the changes is saved the system will reset the IP address on the device automatically and user will need to re-enter the IP address to continue the WebGUI function.



8. CONNECTION DIAGRAM





## 9. SPECIFICATIONS

<b>Frequency bandwidth</b>	300Mbps to 3Gbps
<b>Input Ports</b>	4 x HDMI 1 x USB (Service only) 1 x RJ45 (Control) 1 x RS-232 1 x IR Extender
<b>Output ports</b>	1 x HDMI
<b>Resolution</b>	480i~1080p@50/60, 1080p@24, 4K2K (3840x2160@24/25/30, 50/60 YUV_420 & 4096x2160@24, 50/60YUV_420Hz)
<b>HDMI I/O Cable Distance</b>	15M@8/12bit, 5M@4Kx2K
<b>IR Frequency</b>	30~50kHz
<b>Power Supply</b>	5VDC/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>	240mm (W) x 104mm (D) x 43mm (H)/Jacks Excluded 240mm (W) x 111.2mm (D) x 48mm (H)/ Jacks Included
<b>Weight</b>	798g
<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 (no condensation)
<b>Power Consumption (W)</b>	4W

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)	✓	✓
3840x2160@24/25/30, 50/60 Y420	✓	✓
4096x2160@24/,50/60 Y420	✓	✓

Audio Sampling Rate Up to 192 kHz

HDMI input (Up to 192kHz)	HDMI output
LPCM 2CH	✓
LPCM 5.1CH	✓
LPCM 7.1CH	✓
Dolby Digital 2~5.1CH/ DTS 2~5.1CH	✓
Dolby TrueHD/ DTS-HD Master Audio	✓

Audio Format LPCM 2/5.1/7.1CH,Dolby Digital 2~5.1CH, DTS 2~5.1CH  
(Pass through), Dolby TrueHD and DTS-HD Master  
Audio

HDMI input	HDMI output
LPCM 2CH	✓
LPCM 5.1CH	✓
LPCM 7.1CH	✓
Dolby Digital 2~5.1CH/ DTS 2~5.1CH	✓
Dolby TrueHD/ DTS-HD Master Audio	✓

## 9. ACRONYMS

ACRONYM	COMPLETE TERM
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HDMI</b>	High Definition Multimedia Interface
<b>4Kx2K</b>	3840x2160/ 4096x2160



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