

EL-41HP-4K22

6G UHD 4 to 1 HDMI Switcher with HDCP 2.2



HDMI[®]
HIGH-DEFINITION MULTIMEDIA INTERFACE

4Kx2K

HDCP 2.2

Operation Manual

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	17/04/16	Preliminary Release

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1. INTRODUCTION

The 6G UHD 4 to 1 HDMI switcher is the most advanced HDMI solution for your true Ultra High-Definition signal distribution. It allows you to manipulate four 6G HDMI input signals with switching into one 6G HDMI displays. With supports 4K2K@60, 48-bit Deep Color, HDR (High Dynamic Range) audio and other features defined by HDMI 2.0 specifications. Multi control interfaces include RS-232, Telnet, WebGUI, IR remote and on-panel control makes operation easily and intuitive.

2. APPLICATIONS

- Entertainment Room & Home Theater
- Show Room & Demo Room
- Lecture Room & Hall Presentation
- Show Room & Demo Room
- Public Commercial Display

3. PACKAGE CONTENTS

- 1 x HDMI switcher unit
- 1 x IR Extender with cable
- 1 x 5V / 2.6A DC power adaptor
- 1 x Remote control unit (model: CR-72)
- 1 x Operation Manual

4. SYSTEM REQUIREMENTS

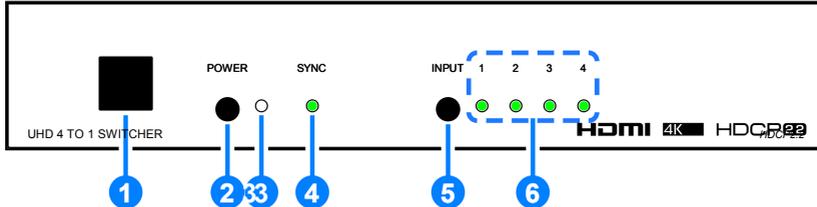
Input source equipment such as PS3/Blu-ray player and output UHD TV/display.

5. FEATURES

- HDMI with 6G 4Kx2K supported, HDCP 2.2 and DVI compliant
- Supports 4 HDMI inputs and 1 HDMI output of 6G video
- Supports HDTV resolutions up to 4Kx2K (3840x2160@24/25/30/50/60 & 4096x2160 @24/25/30/50/60Hz)
- Supports data rate up to 6Gbps and Deep Color up to 1080p 48-bit
- Supports pass-through of HD audio formats of PCM 2/5.1/7.1CH, Dolby Digital 2~5.1CH, DTS 2~5.1CH, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- Device could be controlled via Telnet, WebGUI, IR remote and RS-232

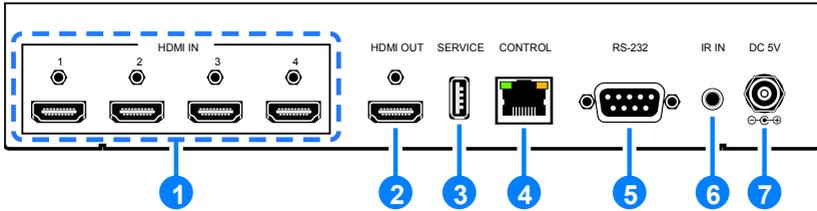
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 IR receiving window:** The IR receiving window receives IR signal of remote control unit supplied in the package.
- 2 Power:** Presses this button to power on the switcher once connecting with power supply supplied in the package.
- 3 Power indicator:** This LED indicator illuminated in red once the device is connected to power supply and this switcher goes to standby mode. The network and RS-232 remain active in standby mode. Press the power button again to power on switcher unit, the LED indicator illuminated in green.
- 4 SYNC:** The SYNC LED indicator illuminated in green when connecting with sink device.
- 5 Input:** Press input button to select preferred source to display. This switcher unit allowing four sources connection.
- 6 Input source LED indicator:** These LED indicator is for distinguish selected source. Four of input sources are able to be connected. The correspondence LED indicator (1 ~ 4) illuminated in green once selected.

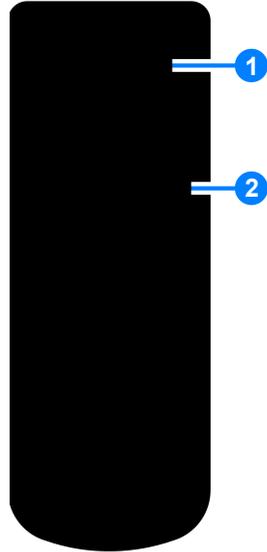
6.2 Rear Panel



- 1 HDMI In** : Connects with HDMI input sources such as gaming console, Blu-ray player via HDMI cable. The DVI source is compatible.
- 2 HDMI Out**: Connects with display equipments with HDMI input connector.
- 3 SERVICE**: This service slot (USB2.0) is for firmware update in field. Please plug in USB thumb drive to update firmware.
- 4 CONTROL**: Connects to PC or Laptop with active internet service for Telnet and WebGUI control with RJ-45 terminated cable.
- 5 RS-232**: Connects with D-Sub 9 pin cable with PC or laptop in order to send RS232 commands to control switcher unit.
- 6 IR IN**: Connect the IR Receiver cable supplied in the package for receiving IR signal for remote control purpose.
- 7 DC 5V**: Connects with power adaptor supplied in the package and connect to AC wall outlet for supplying power to switcher unit. The power LED indicator on front panel will illuminate once connecting with AC power.

6.3 Remote Control

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



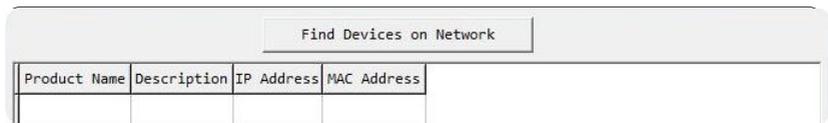
6.4 WebGUI

Install the IP Discovery Tool:

- (1) Please obtain the Device Discovery software from your authorized dealer and save it in a directory where you can easily find it.

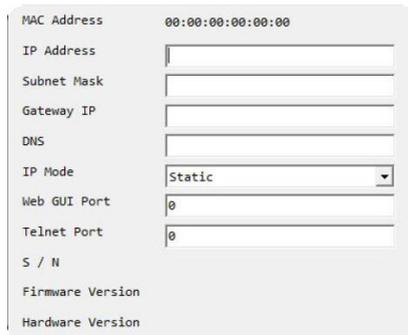
Note: The unit's default IP address is 192.168.1.50 when set to Static

- (2) Connect the unit and your PC/Laptop to the same active network and execute the Device Discovery software. Click on "Find Devices on Network" on Networkd your PC/Laptop to the same active network and execute the Device Discovery software. Click on "ntilatio.



Product Name	Description	IP Address	MAC Address

- (3) By clicking on one of the listed devices you will be presented with the network details of that particular device. If you choose, you can alter the static IP network settings for the device, or switch the unit into DHCP mode to automatically obtain proper network settings from a local DHCP server. To switch to DHCP mode, please select DHCP from the IP mode drop-down, then click "Save" followed by "Reboot".



MAC Address	00:00:00:00:00:00
IP Address	<input type="text"/>
Subnet Mask	<input type="text"/>
Gateway IP	<input type="text"/>
DNS	<input type="text"/>
IP Mode	Static
Web GUI Port	0
Telnet Port	0
S / N	
Firmware Version	
Hardware Version	

- (4) Once you are satisfied with the network settings, you may use them to connect via Telnet or WebGUI. The network information window provides a convenient link to launch the WebGUI directly.

6.5.1 WebGUI Control Page

All functions, including power, input selection, EDID management, HDCP management, output adjustments, Ethernet settings, volume adjustments, and reset/firmware functions, are presented on a single web page to allow for intuitive operation. The individual functions will be introduced in the following sections.

The screenshot displays the WebGUI Control Page with the following sections and controls:

- POWER:** A dropdown menu set to "OFF".
- ROUTING:** "Output From:" dropdown menu set to "PASAONSI".
- SOURCE DETECT:** INPUT1: OFF, INPUT2: OFF, INPUT3: OFF, INPUT4: OFF.
- STATUS:** HDMI OUT: PASAONSI, VERSION: V1.3C, with "RESET" and "REBOOT" buttons.
- EDID:** Mode: APPOINT; EDID IN1: 8/2D/PCM/720p; EDID IN2: 8/2D/PCM/720p; EDID IN3: 8/2D/PCM/1080p; EDID IN4: 8/2D/PCM/4K2K_Y420.
- HDCP CONTROL:** INPUT1: Standard; INPUT2: Standard; INPUT3: Standard; INPUT4: Standard.
- HDMI OUT INFO:** Type: -, Manuf. Name: -, Native Resolution: -, Color Depth: -, 3D: -, 4K2K: -, Audio Format: -.
- NAMING:** INPUT1: PASAONSI; INPUT2: SONY; INPUT3: PS3; INPUT4: CPHD-3; OUTPUT: VA-1838. Includes a "SAVE" button.
- NETWORK SETTING:** MAC: 12:34:56:78:9abc; IP Mode: DHCP; IP Address: 192.168.6.86; Net Mask: 255.255.255.0; Gateway: 192.168.6.254; HTTP Port: 80; Telnet Port: 23. Includes an "APPLY" button.

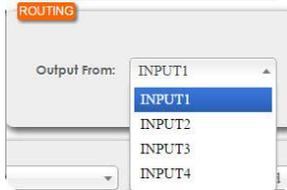
6.5.2 Power On/Off

The unit can be powered on or off from this tab.



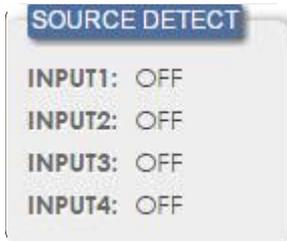
6.5.3 Routing

The unit can be powered on or off from this tab.



6.5.4 Source Detect

When input source connected, the corresponded input port will display "On".



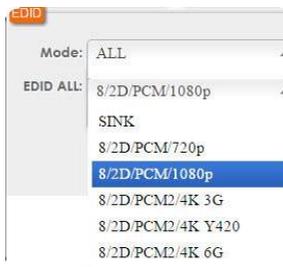
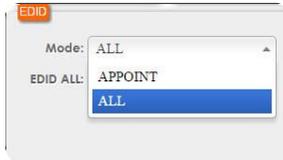
6.5.5 Status

- (1) This tab displays current corresponding HDMI input port for HDMI output and the unit's firmware revision.
- (2) To initialize the unit to factory reset, please click "RESET" button.
- (3) To reboot the unit, please click "REBOOT" button.



6.5.6 EDID

- (1) All HDMI input EDID allows to set to the same, the available EDID includes 8/2D/PCM/720p, sink, 8/2D/PCM/1080p, 8/2D/PCM2/4K3G, 8/2D/PCM2 4K Y420, 8/2D/PCM/4K 6G.
- (2) When user needs to set different EDID for HDMI inputs, please select “Appoint” then desired EDID information.



6.5.7 HDCP Control

The HDCP mode could be selected as “standard” or “apple” mode here. Please select “Apple mode” once uses Apple devices such as Apple TV.



6.5.8 HDMI Out Info

The HDMI output information including type, manufacturer name, native resolution, color depth, support 3D or not, 4K2K or not and audio format displays here.



The screenshot shows a dialog box titled "HDMI OUT INFO". It contains a list of HDMI output parameters, each followed by a hyphen (-) indicating that the information is not available or is blank.

Parameter	Value
Type:	-
Manuf. Name:	-
Native Resolution:	-
Color Depth:	-
3D:	-
4K2K:	-
Audio Format:	-

6.5.9 NAMING

The four HDMI inputs and one HDMI output could be renamed here. Please click "SAVE" button to save the change.



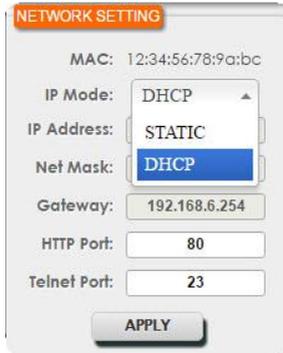
The screenshot shows a dialog box titled "NAMING". It contains five input fields for renaming the HDMI ports. Each field is currently filled with its default name. Below the input fields is a "SAVE" button.

Label	Value
INPUT1:	INPUT1
INPUT2:	INPUT2
INPUT3:	INPUT3
INPUT4:	INPUT4
OUTPUT:	OUTPUT

SAVE

6.5.10 Network Setting

The related network setting can be changed here which includes IP mode either DHCP or Static, IP address, net mask, Gateway, Http port and Telnet port.



The image shows a 'NETWORK SETTING' configuration window. At the top, the MAC address is '12:34:56:78:9a:bc'. Below that, the 'IP Mode' is set to 'DHCP'. The 'IP Address' is set to 'STATIC', and the 'Net Mask' is set to 'DHCP'. The 'Gateway' is '192.168.6.254'. The 'HTTP Port' is '80' and the 'Telnet Port' is '23'. An 'APPLY' button is at the bottom.

MAC:	12:34:56:78:9a:bc
IP Mode:	DHCP
IP Address:	STATIC
Net Mask:	DHCP
Gateway:	192.168.6.254
HTTP Port:	80
Telnet Port:	23

APPLY

6.6 Telnet Control

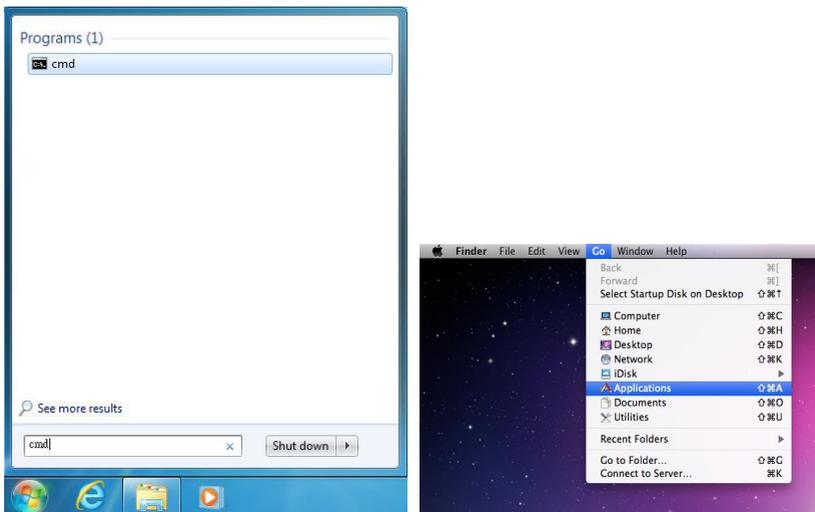
Before attempting to use telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

To access Telnet in Windows 7, click on the “Start” menu and type “cmd” in the search field, then press “Enter”.

Under Windows XP go to the “Start” menu, click on "Run", type "cmd" then press “Enter”.

Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.



Once in the command line interface (CLI) type "telnet", then the IP address, and hit enter.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>telnet 192.168.XX.XX 23
```

Press “Help” or “?” then hit enter to bring up all available commands.

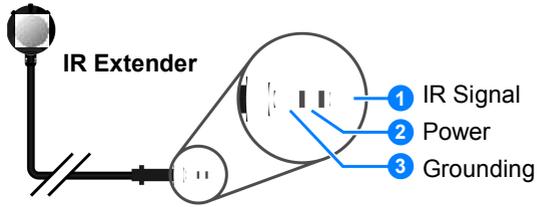
The drawing will be to updated

6.7 RS-232 Command

Command Name	Command Description	Parameter
?	Print this message, code entry is not CASE SENSITIVE	NONE
HELP	Print this message, code entry is not CASE SENSITIVE	NONE
P0	POWER OFF	NONE
P1	POWER ON	NONE
INNAME	SET/SHOW ALL INPUT NAME	INNAME [1~4][8 char]
OUTNAME	SET/SHOW HDMI OUTPUT NAME	OUTNAME [8 char]
OUT	SET/SHOW OUT SOURCE	OUT [1~4]
SOURCEDET	SHOW INPUT INFORMATION	NONE
SINKINFO	SHOW OUTPUT INFORMATION	NONE
HDCPIN	SET/SHOW INPUT HDCP STATUS	HDCPIN [1~4] [0:STANDARD/1:APPLE]
EDIDMODE	SET/SHOW EDID MODE TYPE	EDIDMODE [0:APPOINT/1:ALL]
EDIDALL	SET/SHOW EDID ALL CONTENT	EDIDALL [0~5]
EDIDIN	SET/SHOW EDID INPUT CONTENT	EDIDIN [1~4] [0:Sink]
FADEFAULT	SET ALL CONFIGURATIONS TO FACTORY DEFAULT	NONE
REBOOT	REBOOT DEVICE	NONE

Command Name	Command Description	Parameter
VER	DISPLAY FIRMWARE VERSION	NONE
IPCONFIG	DISPLAY THE CURRENT IPCONFIG	NONE
SIPADDR	SET ETHERNET IP ADDRESS	SIPADDR X.X.X.X (X:0~255)
SNETMASK	SET ETHERNET NETMASK	SNETMASK X.X.X.X (X:0~255)
SGATEWAY	SET ETHERNET GATEWAY	SGATEWAY X.X.X.X (X:0~255)
HTTPPORT	SET HTTP PORT NUMBER	HTTPPORT N (N=0~65535)
TELNETPORT	SET TELNET PORT NUMBER	TELNETPORT N (N=0~65535)
IPMODE	SET IP MODE	IPMODE N (N=0-STATIC, 1-DHCP)
IPSTATIC	Set static IP address	IPSTATIC [Adderss] [Netmask] [Gateway]
SETMAC	Write MAC Address to eeprom	NONE
READMAC	Read MAC Address from eeprom	NONE
UPDATE	UPDATE Firmware <MCU/VS/ZVS>	NONE

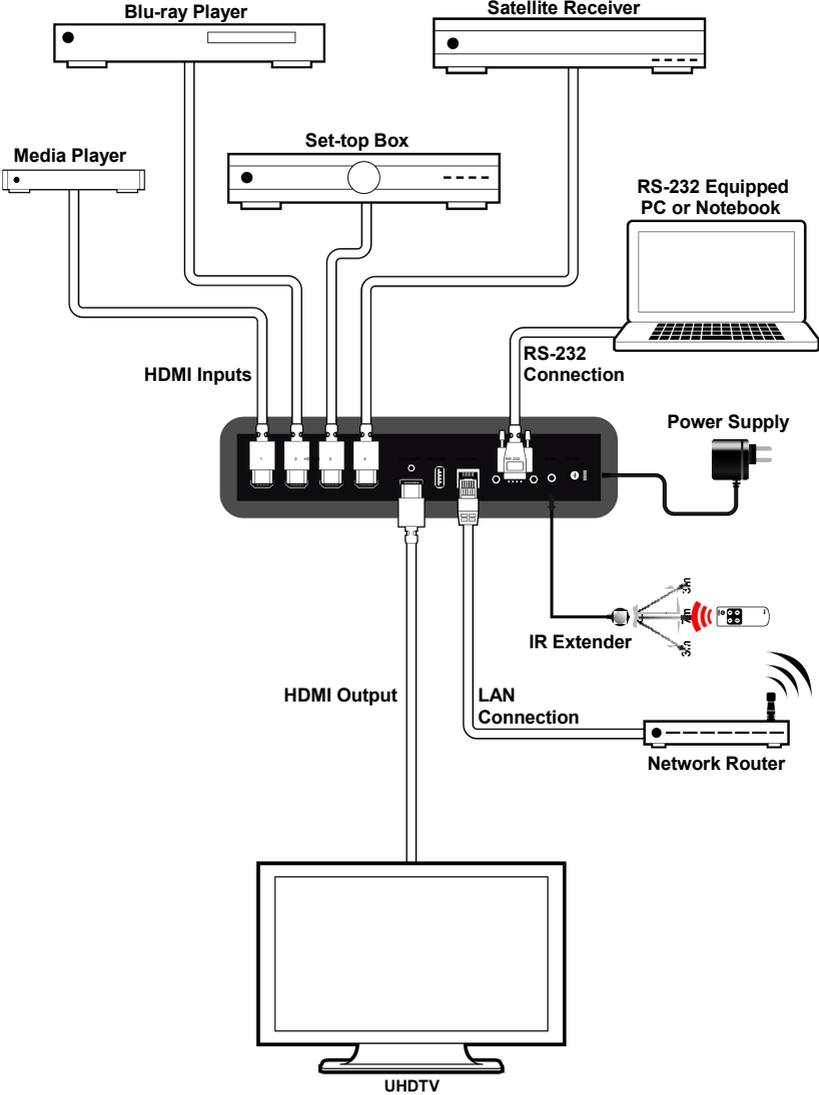
6.8 IR Cable Pin Assignment



6.9 D-sub 9 Pin Definition

Pin	Definition TX / RX
1	N/C
2	TxD/RxD
3	RxD/TxD
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C
9	NC

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

Video Bandwidth	600MHz/6Gbps
Input Ports	4 x HDMI
Output Ports	1 x HDMI
Supported Resolutions	480i~4K2K@24/50/60
HDMI Sampling Rate	32kHz ~ 192 kHz
IR Frequency	38kHz
Baud Rate	115200 bps
Power Supply	5VDC/2.6A (US/EU standards, CE/FCC/ UL certified)
ESD Protection	Human Body model: ± 12KV (air-gap discharge) ± 8kV (contact discharge)
Dimensions	240mm(W) x 104mm(D) x 43mm(H)/Jacks Excluded
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 (no condensation)
Power Consumption	5.83W (standby 1.1W)

9. SUPPORT TIMING TABLE

9.1 Support Timing Table

HDMI RESOLUTION	SUPPORTED
480i	✓
576i	✓
480p	✓
576p	✓
640x480@60&72&75&85	✓
720p @50&60	✓
800x600@56&60&72&75&85	✓
1080i @50&60	✓
1080p@24&25&30	✓
1080p@50&60	✓
1024x768@60&70&75&85	✓
1280x1024@60	✓
1600x1200@60	✓
1680x1050@60RB	✓
1920x1200@60BR	✓
3840x2160p@24&25&30	✓
3840x2160p@60(YUV420)	✓
4096x2160p@24	✓
4096x2160p@60(YUV420)	✓
4096 x 2160p60 (YUV444)	✓

9.2 HDMI Cable Length

HDMI CABLE LENGTH (MAX)			
8-bit 1080p		12-bit 1080p	
Input	Output	Input	Output
10M	10M	10M	10M

HI SPEED 4K2K CABLE LENGTH (MAX)		
4K2K	HDMI In	HDMI Out
3840x2160p24	5m	5m
3840x2160p60	5m	5m

