



CPLUS-V4H2HP

6G UHD 4 to 2 HDMI Matrix with HDCP2.2



HDMI[®]
HIGH-DEFINITION MULTIMEDIA INTERFACE

4K x 2K⁺

HDCP 2.2

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 (DD/MM/YY) | SUMMARY OF CHANGE |
|-------------|-----------------|---------------------|
| RDV1 | 29/06/16 | Preliminary Release |
| | | |



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1. INTRODUCTION

This 6G UHD 4 by 2 HDMI Matrix allows customer to route up to four 6G HDMI input signals to any of two 6G HDMI outputs. This unit supports 4K@60Hz (YUV 4:4:4), 48-bit Deep Color, HDR (High Dynamic Range), HD audio formats and other features defined by the HDMI 2.0 specification. Five pre-defined internal EDIDs and two external EDID selections are available for EDID management. The unit provides intuitive front panel controls as well as RS-232, telnet, WebGUI and IR remote control options.

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 matrix unit
- 1 x IR Extender with cable
- 1 x 5V / 2.6A DC power adaptor
- 1 x Remote control unit (model: CR-155)
- 1 x Operation Manual

4. SYSTEM REQUIREMENTS

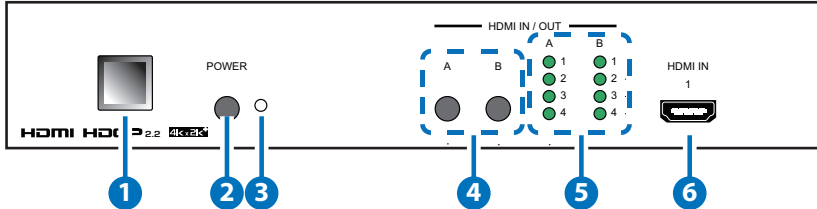
HDMI source equipment such as media players, video game consoles or set-top boxes and HDMI receiving equipment such as HDTVs, monitors or audio amplifier

5. FEATURES

- HDMI 2.0, HDCP 2.2 and DVI 1.0 compliant
- Supports matrix routing of four 6G HDMI inputs to two 6G HDMI outputs
- Supports HDTV resolutions up to 4K UHD (3840x2160@24/25/30/50/60 & 4096x2160@24/25/30/50/60Hz)
- Maximum data rate up to 6Gbps with Deep Color support up to 1080p 48-bit
- Supports pass-through of HD audio formats including LPCM 2.0~7.1, Dolby Digital, DTS, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio
- Supports EDID management via five pre-defined internal EDIDs and two external EDID selections
- Multiple control interfaces including RS-232, telnet, WebGUI and IR remote

6. OPERATION CONTROLS AND FUNCTIONS

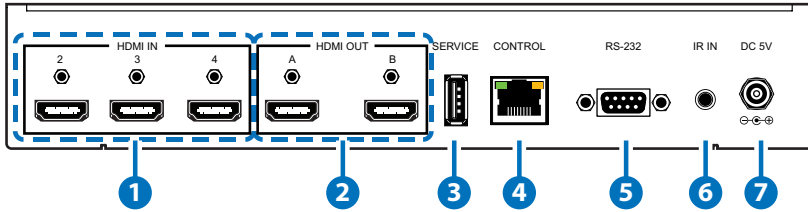
6.1 Front Panel



- 1 IR window:** Accepts IR signals from the included IR remote for control of this unit only.
- 2 POWER:** Press this button to power on the unit or place it into stand-by mode.

Note: Ethernet and RS-232 remain active while the unit is in stand-by mode.
- 3 Power indicator:** The LED will illuminate RED to indicate the unit is receiving power but is in stand-by mode. It will illuminate GREEN to indicate that the unit has been turned on.
- 4 HDMI out indicator "A & B":** The correspondence LED will illuminate GREEN when a stable connection with an output device is detected.
- 5 HDMI In indicator "1&2&3&4":** The correspondence LED will illuminate GREEN when a stable connection with an input device is detected.
- 6 HDMI In:** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI source equipment may be connected by using an HDMI to DVI adapter.

6.2 Rear Panel



- 1 **HDMI In :** Connect to HDMI source equipment such as a media player, game console or set-top box. DVI source equipment may be connected by using an HDMI to DVI adapter.
- 2 **HDMI Out:** Connect to HDMI TVs, monitors or amplifiers for digital video and audio output. DVI display equipment may be connected by using an HDMI to DVI adapter.
- 3 **SERVICE:** This slot (USB 2.0) is reserved for firmware update use only. Please plug in a USB thumb drive containing the new firmware to update the unit.
- 4 **CONTROL:** Connect directly, or through a network switch, to your PC/laptop to control the unit via telnet/WebGUI.
- 5 **RS-232:** Connect directly to your PC/laptop to send RS-232 commands to control the unit.
- 6 **IR IN:** Connect to the provided IR Extender to extend the IR control range of the unit. Ensure that the remote being used is within direct line-of-sight of the IR Extender.
- 7 **DC 5V:** Plug the 5V DC power adapter into the unit and connect it to an AC wall outlet for power. The LED will illuminate GREEN to indicate the unit is on and receiving power.

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

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" and a list of devices connected to the local network will show up indicating their current IP address.

| Find Devices on Network | | | | |
|-------------------------|-------------|------------|-------------|--|
| 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 <input type="button" value="v"/> |
| Web GUI Port | 0 <input type="text"/> |
| Telnet Port | 0 <input type="text"/> |
| S / N | |
| Firmware Version | |
| Hardware Version | |

- 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.

6.3.1 WebGUI Control Page

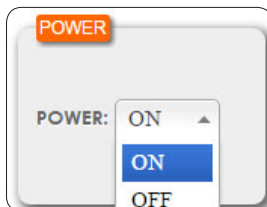
All functions, including power, input selection, EDID management, HDCP management, output adjustments, Ethernet settings, volume adjustments, and reset/firmware functions, are presented on a single web page to allow for intuitive operation. The individual functions will be introduced in the following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

The screenshot displays a comprehensive control interface with the following sections:

- POWER:** A dropdown menu set to 'ON'.
- ROUTING:** 'Output A From:' set to 'INPUT1' and 'Output B From:' set to 'INPUT3'.
- SOURCE DETECT:** Four checkboxes for INPUT1, INPUT2, INPUT3, and INPUT4, all currently turned OFF.
- STATUS:** 'HDMI OUT A:' (INPUT1), 'HDMI OUT B:' (INPUT3), and 'VERSION:' (V2.1). Includes 'RESET' and 'REBOOT' buttons.
- EDID:** 'Mode:' set to 'ALL' and 'EDID ALL:' set to 'S/2D/PCM/1080p'.
- HDCP CONTROL:** Four dropdown menus for INPUT1, INPUT2, INPUT3, and INPUT4, all set to 'Standard'.
- NETWORK SETTING:** 'MAC:' (f0:23:45:67:89:ab), 'IP Mode:' (DHCP), 'IP Address:' (192.168.6.132), 'Net Mask:' (255.255.255.0), 'Gateway:' (192.168.6.254), 'HTTP Port:' (80), and 'Telnet Port:' (23). Includes 'APPLY' and 'SAVE' buttons.
- FIRMWARE UPDATE:** 'BROWSE' and 'UPDATE' buttons.
- HDMI OUT A INFO:** Fields for Type, Manuf. Name, Native Resolution, Color Depth, 3D, 4K2K, and Audio Format, all showing dashes.
- HDMI OUT B INFO:** Similar fields to HDMI OUT A, all showing dashes.
- NAMING:** Input fields for INPUT1-4 and OUTPUTA/B, with a 'SAVE' button.

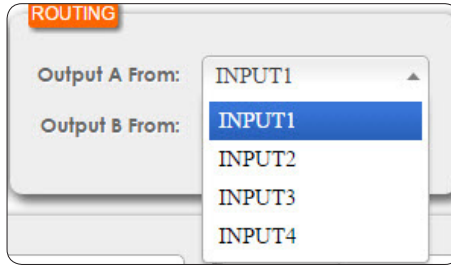
6.3.2 Power On/Off

The unit can be powered on or off (stand-by mode) from this tab.



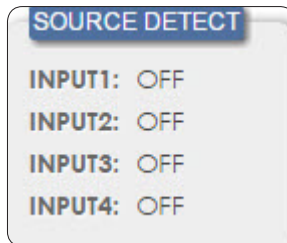
6.3.3 Routing

This tab allows for the selection of the input source. Four HDMI inputs and two HDMI output are available for selection.



6.3.4 Source Detect

When a live input source is connected one of the 4 HDMI inputs the corresponding input port in this tab will display "ON". If no source is detected on that input, it will display "OFF".



6.3.5 Status

This tab displays the currently selected HDMI input source and the unit's firmware version as well as allowing for resetting or rebooting the unit.

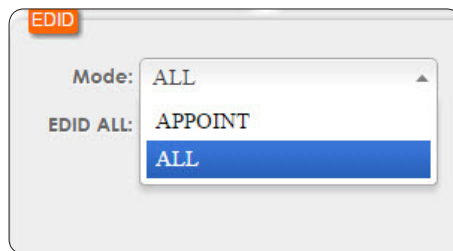
- 1) To perform a factory reset on the unit, please click the "RESET" button.
- 2) To reboot the unit, please click "REBOOT" button.

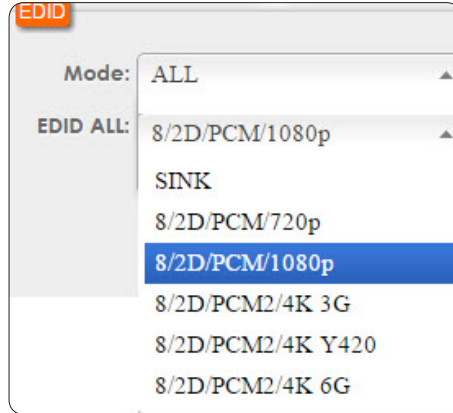


6.3.6 EDID

This tab controls EDID management for the unit. All inputs can share the same assigned EDID, or each input can have a discrete EDID assigned to it.

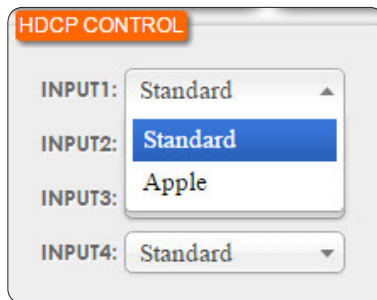
- 1) Selecting the "ALL" mode will send the selected EDID to all inputs.
- 2) Selecting the "APPOINT" mode allows for each input to have a different EDID assigned to it.
- 3) The available EDID options include SINK (EDID is passed from the currently connected display), 8/2D/PCM/720p, 8/2D/PCM/1080p, 8/2D/PCM2/4K 3G, 8/2D/PCM2/4K Y420 and 8/2D/PCM/4K 6G.





6.3.7 HDCP Control

This tab allows for the HDCP mode to be switched between “Standard” and “Apple” mode. “Apple” mode allows for the display of non-HDCP required content from Apple devices on non-HDCP displays. This setting can be assigned individually to each input.



6.3.8 Firmware Update

- 1) BROWSE: Click the browse tab to select the updated firmware bin file which save in PC or USB thumb drive.
- 2) UPDATE: Click the update tab to update the firmware.



6.3.9 HDMI Out A Info & HDMI Out B Info

Two HDMI output (output A & B) display's detected information is listed here, including type, manufacturer name, native resolution, color depth, 3D support, 4K support and audio format support.



6.3.10 NAMING

This tab allows for the renaming of the four HDMI input ports and the HDMI output ports. Please click the “SAVE” button to store the changes.

The NAMING configuration window contains the following fields and a button:

| | |
|----------|---------|
| INPUT1: | INPUT1 |
| INPUT2: | INPUT2 |
| INPUT3: | INPUT3 |
| INPUT4: | INPUT4 |
| OUTPUTA: | OUTPUTA |
| OUTPUTB: | OUTPUTB |

SAVE

6.3.11 Network Setting

This tab provides control over the unit's network settings. The IP mode can be set to DHCP for automatic IP configuration, if your local network supports it, or it can be placed in Static mode and the IP address, netmask and gateway can be defined manually. The HTTP and telnet ports can also be changed from their defaults here.

The NETWORK SETTING configuration window contains the following fields and a button:

| | |
|--------------|-------------------|
| MAC: | f0:23:45:67:89:ab |
| IP Mode: | DHCP |
| IP Address: | 192.168.6.132 |
| Net Mask: | 255.255.255.0 |
| Gateway: | 192.168.6.254 |
| HTTP Port: | 80 |
| Telnet Port: | 23 |

APPLY

6.4 Telnet Control

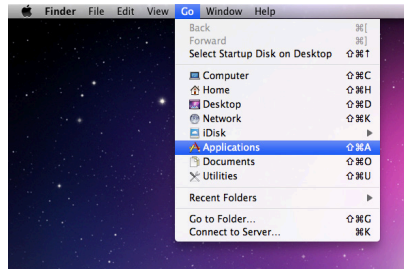
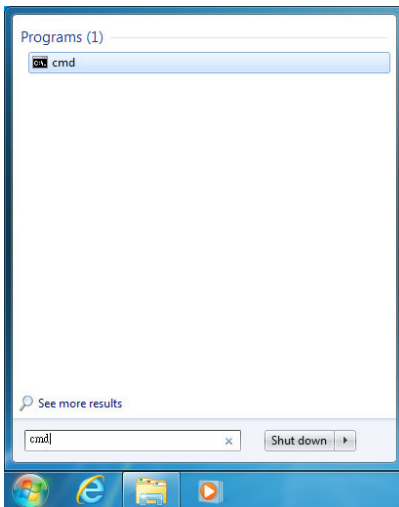
Before attempting to use telnet control, please ensure that both the unit and the PC/Laptop are connected to the same active networks.

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 CLI (Command Line Interface) type "telnet" followed by the IP address of the unit and "23", then 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
```



This will connect us to the unit we wish to control. Type “help” to list the available commands.

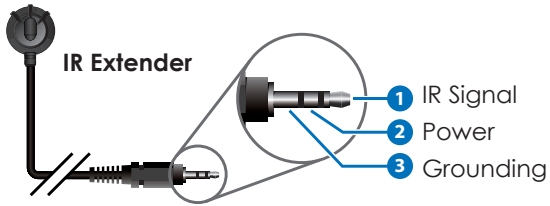
```
Welcome to TELNET.  
?  
Command List  
-----  
HELP  
P0  
P1  
INNAME  
OUTNAME  
OUT  
SOURCEDET  
SINKINFO  
HDCPIN  
EDIDMODE  
EDIDALL  
EDIDIN  
FAEFAULT  
REBOOT  
UER  
IPCONFIG  
SIPADDR  
SNETMASK  
SGATEWAY  
HTTTPORT  
TELNETPORT  
IPMODE  
SETMAC  
READMAC  
UPDATE
```

6.5 RS-232 Command

| Command Name | command description | parameter |
|--------------|---|--|
| HELP/? | Print this message, code entry is not CASE SENSITIVE. | NONE |
| P0 | POWER OFF | NONE |
| P1 | POWER ON | NONE |
| INNAME | SET/SHOW ALL INPUT NAMEIN | NAME [1~4] [8 char] |
| OUTNAME | SET/SHOW HDMI OUTPUT NAME | OUTNAME [A/B] [8 char] |
| A | SET/SHOW OUTA SOURCE | A [1~4] |
| B | SET/SHOW OUTB SOURCE | B [1~4] |
| OUT | SET/SHOW OUTA/B 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 [0~6] 0=OUTPUT A 1=OUTPUT B 2=8/2D/PCM/720P 3=8/2D/PCM/1080P 4=8/2D/PCM/4K2K_30 5=8/2D/PCM/4K2K_Y420 6=8/2D/PCM/4K2K_60 |
| EDIDIN | SET/SHOW EDID INPUT CONTENT | EDIDIN [1~4] [0~6] |
| FADEFAULT | SET ALL CONFIGURATIONS TO FACTORY DEFAULT | NONE |
| REBOOT | REBOOT DEVICE | NONE |
| 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) |
| SETMAC | Write MAC Address to eeprom | NONE |
| READMAC | Read MAC Address from eeprom | NONE |
| UPDATE | UPDATE Firmware <MCU/VS/ ZVS> | |
| HDCPDOWN(N) | N=1 YES | |

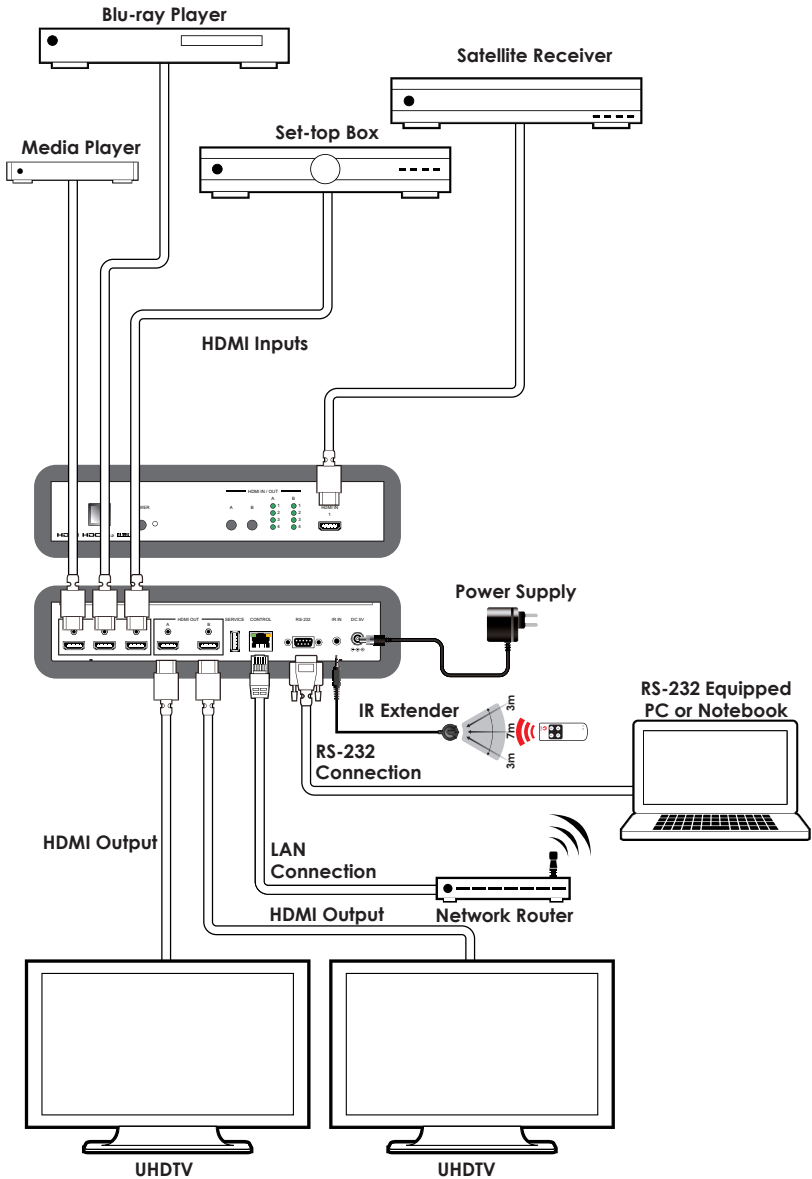
6.6 IR Cable Pin Assignment



6.7 D-sub 9 Pin Definition

| Pin | Define 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 1 x IR In |
| Output Ports | 2 x HDMI |
| Others | 1 x Control 1 x Service 1 x RS232 |
| Supported Resolutions | 480i to 4K2K@24/50/60 |
| HDMI Sampling Rate | 32kHz ~ 192 kHz |
| IR Frequency | 38kHz |
| Baud Rate | 19200 bps |
| Power Supply | 5VDC/2.6A (US/EU standards, CE/FCC/ UL certified) |
| Chassis Material | Metal |
| Silkscreen Color | Black |
| Weight | 796g |
| Dimensions | 240mm(W) x 104mm(D) x 43mm(H)/Jacks Excluded |
| Power Consumption | 7.106W (1.10W at standby mode) |



9. SUPPORT TIMING TABLE & HDMI CABLE LENGTH

9.1 Support Timing Table

| HDMI RESOLUTION | SUPPORTED |
|-----------------------------------|-----------|
| 480i | ✓ |
| 576i | ✓ |
| 480p | ✓ |
| 576p | ✓ |
| 640x480 | ✓ |
| 720p @50&60 | ✓ |
| 800x600 | ✓ |
| 1080i @50&60 | ✓ |
| 1080p@24&50&60 | ✓ |
| 1024x768 | ✓ |
| 1366x768 | ✓ |
| 1280x1024 | ✓ |
| 1600x1200 | ✓ |
| 1920x1200 | ✓ |
| 3840x2160p@24&25&30&50&60(YUV444) | ✓ |
| 3840x2160p@50&60(YUV420) | ✓ |
| 4096x2160p@24&50&60(YUV444) | ✓ |
| 4096x2160p@50& 60(YUV420) | ✓ |

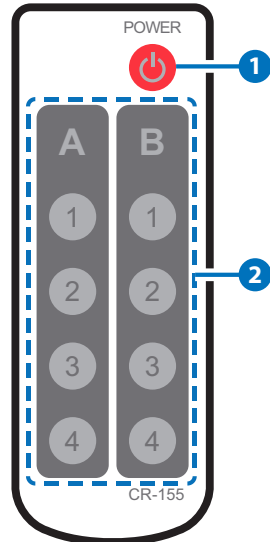
9.2 HDMI Cable Length

| 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 |

10 REMOTE CONTROL

- 1 **POWER:** Press Power key to turn on the device or set to standby mode.
- 2 **OUTPUT A1~A4 & B1~B4:** Press these buttons to change the routing of output A/B.





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