CMSI-46PL

4 by 6 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 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
VR0	25/03/14	Preliminary Release
VR1	07/07/14	RS-232 Description

CONTENTS

1. INTRODUCTION

The 4 by 6 Matrix allows HDMI signal from any of its four sources to be routed to any of its six outputs simultaneously. With a thoughtful design for local and remote connections both required in system integration, the model is engineered with 2 HDMI and 4 CAT5e/6/7 outputs, the later ones carry major HDBaseT features including the transmission of high definition audio and video, bidirectional IR, RS-232 and PoC (Power over Cable) over 60 meters. The remote control, RS-232, Telnet and IP Control, with all information including system status presented on its LCM display.

2. APPLICATIONS

- HDMI system controls
- Video/TV wall display and control
- Security surveillance and control
- Commercial advertising, displaying and control
- Lecture room display and control
- Hyper market demonstration and control

3. PACKAGE CONTENTS

- 1 x 4 by 6 Matrix
- HDMI over CAT5e/6/7 Receivers (Optional)
- 1 x IR Extender
- 1 x IR Blaster
- 1 x L&R Rack Ears
- 1 x 24V/3.75A DC Power Supply
- 1 x Power Cord
- 1 x Remote Control (with battery)
- 1 x Operation Manual

4. SYSTEM REQUIREMENTS

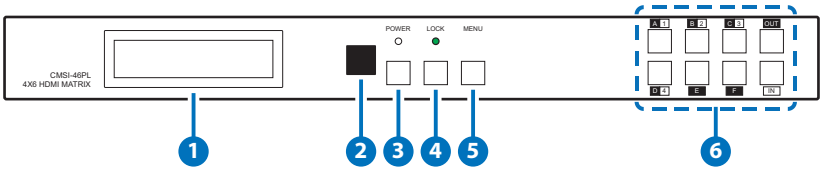
- Input source equipment with HDMI connection cables
- Industry CAT5e/6/7 cable
- HDMI over CAT5e/6/7 Receivers with industrial CAT5e/6/7 cables
- Output displays or audio receiver equipments with HDMI connection cables

5. FEATURES

- Supports resolutions VGA to WUXGA and 480i to 1080p dependent upon the output display's EDID settings
- Supports distances up to 70 meters through CAT6/7 cables and 60m for CAT5e
- Supports 3D signal display dependent upon the output display's EDID settings
- Supports bidirectional IR from input and output locations
- Supports external and internal EDID settings
- Supports LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio Transmission
- Supports PoC (Power over Cable) on compatible receiver only

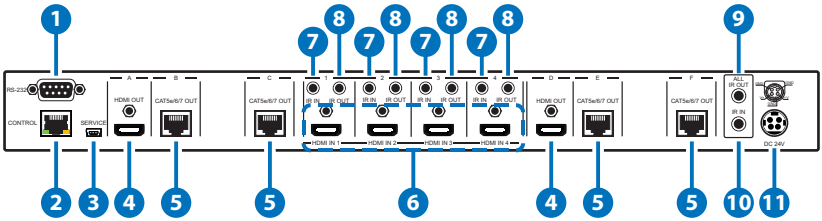
6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



1. **LCM:** This monitor displays your setting information with each input and output selection.
2. **IR:** This IR window accepts the remote control signal of this device only.
3. **Power Button & LED:** Press this button to turn ON the device and the orange LED will illuminate when the power is ON. When the LED illuminate in red it is in standby mode.
4. **LCOK:** Press this button to lock all the buttons on the panel and the LED will illuminate. To unlock, just press it again.
5. **Menu:** Press this button once to select EDID setting from STD(internal) 1 or TV(external) 2 then press it again to confirm the selection. Press this button every time to confirm the selection.
6. **1~4/A~F & OUT/IN button:** Press OUT/IN button first to select the output/input then press the number button to make the selection accordingly. For example, output A~B wish to select input 1 and C~E wish to select input 2. Press OUT → A → B → IN → 1 → Menu, and then press Out → C → D → E → IN → 2 → Menu. If the menu button is not pressed the selection will not be changed.

6.2 Rear Panel



1. **RS-232:** This slot is to connect with D-Sub 9-pin cable from the PC/ Laptop device for RS232 control.

   Note: *This RS-232 obtain routable function that is, from the Matrix it can send commands to all Receivers or from Receiver sides it can also send commands to control the Matrix. In order to allow the Receivers to send command to control the Matrix, a null modern cable/adaptor is required.*

2. **CONTROL:** This port is for Telnet and Web GUI control. Connect to an active network system with RJ45 terminated cable (for details, please refers to section 6.7 & 6.8).

3. **Service:** This slot is to connect with mini USB B type cable for firmware update only.

4. **HDMI OUT A/D:** These slots are to connect with HD TV/display for instant display.

5. **CAT5e/6/7 OUT B/C/E/F:** These slots are to connect with HDMI over CAT5e/6/7 Receiver for signal extension up to 60m.

6. **HDMI IN 1~4:** These slots are to connect to input source equipment such as DVD player or Set-Top-Box with HDMI cable or DVI to HDMI converter cable for input signal sending.

7. **IR IN 1~4:** These slots are to connect with IR Extender included in the package for IR signal receiving. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

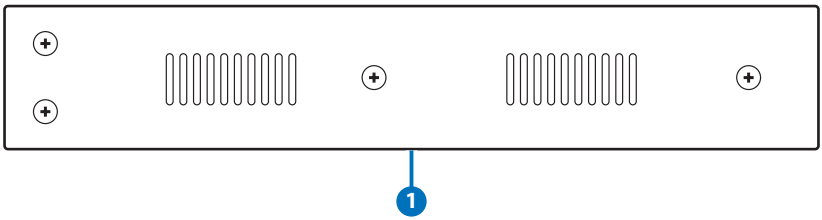
8. **IR OUT 1~4:** These slots are to connect with IR Blaster included in the package for IR signal sending. Place the IR Blaster in direct lineof-sight of the IR Extender.

9. **ALL IR OUT:** This slot is to connect with the IR Blaster for IR signal received from Receiver sides and send to the source side. Place the IR Blaster in direct line-of-sight of the IR Extender.

10 **ALL IR IN:** This slot is to connect with the IR Extender for IR signal receiving and send out to Receiver sides. Ensure that remote being used is within the direct line-of-sight of the IR Extender.

11 **DC24V:** This slot is to plug the power cord with adaptor included in the package and then connect them with AC wall outlet for power supply.

6.3 Side Panel



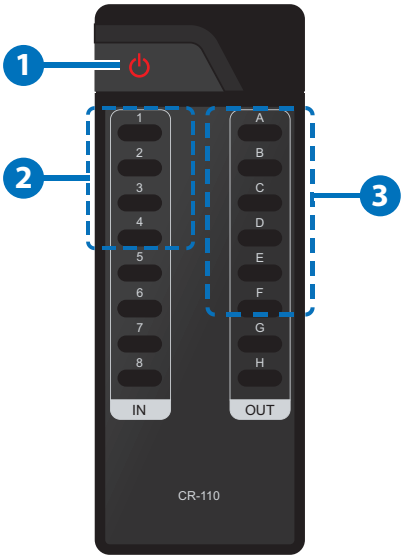
1 **Ventilator:** These are fan ventilator area, DO NOT block these area or cover it with any object.

6.4 Remote Control

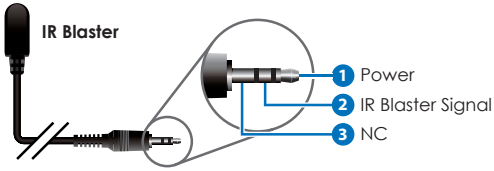
1 **Power:** Press this button to switch ON the device or set it to standby mode.

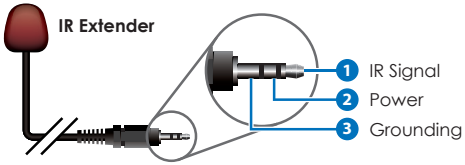
2 **IN:** Input ports selection 1~4.

3 **OUT:** Output ports selection A~F.



6.5 IR Pin Assignment





6.6 RS-232 Protocols

CMSI-46PL	
PIN	Assignment
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Remote Control Console	
PIN	Assignment
1	NC
2	Rx
3	Tx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

Baud Rate: 19200bps
Data bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

6.7 RS-232 & Telnet Commands

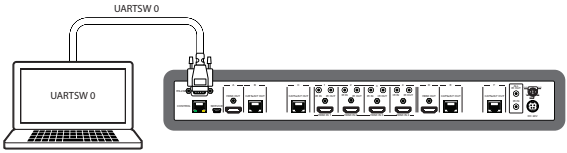
Command	Description
A1~A4	Switch output A to 1~4
B1~B4	Switch output B to 1~4
C1~C4	Switch output C to 1~4
D1~D4	Switch output D to 1~4
E1~E4	Switch output E to 1~4
F1~F4	Switch output F to 1~4
A0~F0	Switch output A to F mute
ABCD…1~ABCD…4	Switch output ABCD… to 1~4
ABCD….0	Mute output ABCD… at the same time
SETIP<IP> <SubNet> <GW>	Setting IP. SubNet. GateWay (Static IP)
RSTIP	IP Configuration Was Reset to Factory Defaults <DHCP>
IPCONFIG	Display the current IP configuration
P0	POWER OFF
P1	POWER ON
I1~I4	Switch all the output to 1~4
STORE	STORE current I/O position (01~06)
RECALL	RECALL the store I/O position (01~06)
SHOW	SHOW current port's I/O position (01~06)
NAME	NAME the stored port (01~06) no more than 8 charactors (ABCDEFGH)
I0	Mute all the output
ST	Display the current matrix status and F/W version
RS	System Reset to A1, B1, C2, D3, E3, F4

Command	Description
EM	Setting EDID MODE. 1-STD 2-TV
?	Display all the available commands
UARTBAUD?	Display each output's baud rate setting 1: 9600bps 2: 14400bps 3: 19200bps 4: 38400bps 5: 57600bps 6: 115200bps
UARTBAUD2	Set output B's baud rate from 1~6
UARTBAUD3	Set output C's baud rate from 1~6
UARTBAUD5	Set output E's baud rate from 1~6
UARTBAUD6	Set output F's baud rate from 1~6
UARTSW?	Display output's UART status.
UARTSW0	Switch to MCU. Restoring RS-232 control to the Receiver output back to Matrix.
UARTSW2	Switch RS-232 control to output B and allow Matrix to send commands to Receiver's connected RS-232 device.
UARTSW3	Switch RS-232 control to output C and allow Matrix to send commands to Receiver's connected RS-232 device.
UARTSW5	Switch RS-232 control to output E and allow Matrix to send commands to Receiver's connected RS-232 device.
UARTSW6	Switch RS-232 control to output F and allow Matrix to send commands to Receiver's connected RS-232 device.
Quit	Exit (for telnet only)

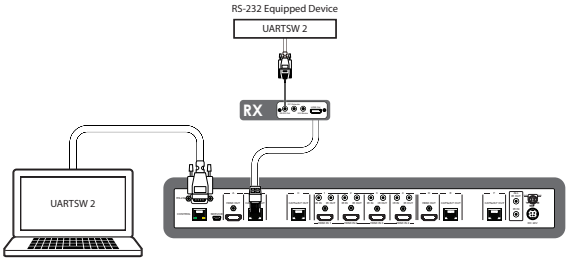
Note:

1. *All the command will be not executed unless followed with a carriage return. All letters are case-insensitive.*
2. *Once switch RS-232 control to output Receiver all control can only be done under RS-232 system.*
3. *Output Receiver's RS-232 equipment baud rate must be set correctly in order to allow the Matrix to send through the commands.*

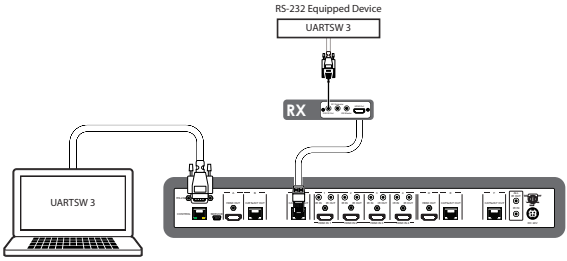
6.8 RS-232 UART Command Illustration Diagram



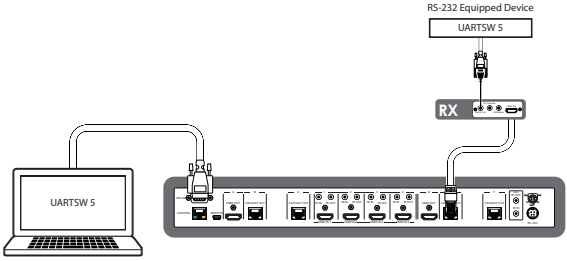
Note: *This command allows RS-232 to control the Matrix.*



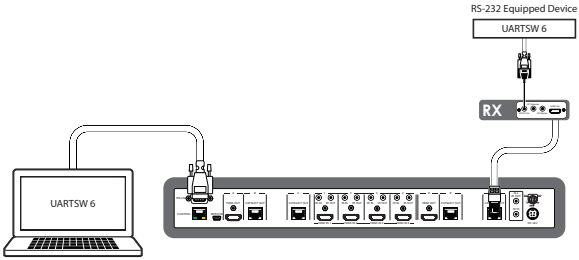
Note: *This command allows RS-232 to control the RS-232 device connected to output B's Receiver.*



Note: *This command allows RS-232 to control the RS-232 device connected to output C's Receiver.*



Note: *This command allows RS-232 to control the RS-232 device connected to output E's Receiver.*



Note: *This command allows RS-232 to control the RS-232 device connected to output F's Receiver.*

6.9 Telnet Control

Before attempting to use the telnet control, please ensure that both the Matrix (via the 'CONTROL' port) and the PC/Laptop are connected to the active networks.

To access the telnet control in Windows 7, click on the 'Start' menu and type "cmd" in the Search field then press enter

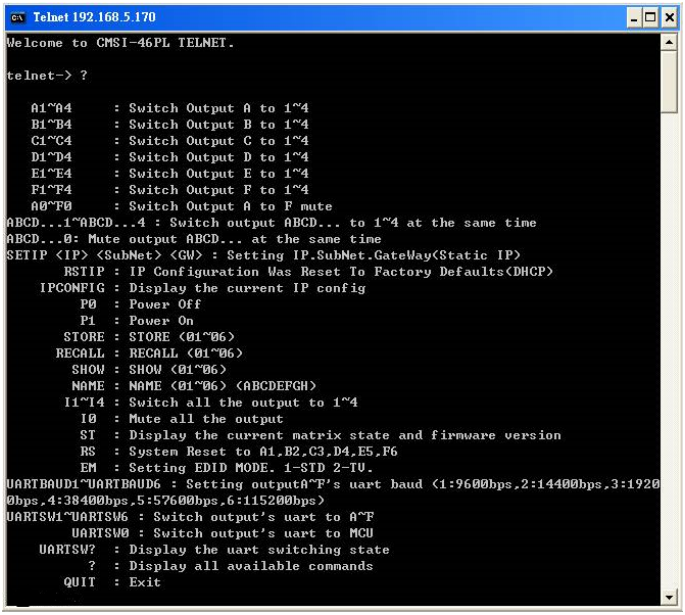
Under Windows XP go to the 'Start' menu and click on "Run", type "cmd" with then press enter.

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 of the unit and "23", then hit enter.

Note: *The IP address of the Matrix can be displayed on the device's LCM monitor by pressing the Menu button twice.*

This will bring us into the device which we wish to control. Type "HELP" to list the available commands.

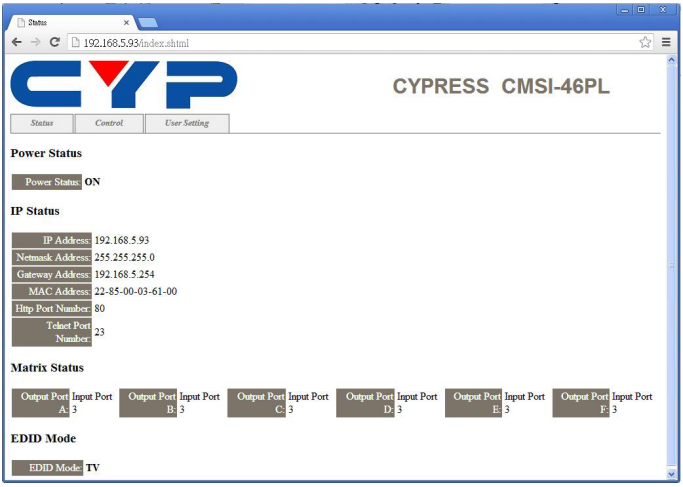


Type "IPCONFIG" To show all IP configurations. To reset the IP, type "RSTIP" and to use a set static IP, type "SETIP" (For a full list of commands, see Section 6.7).

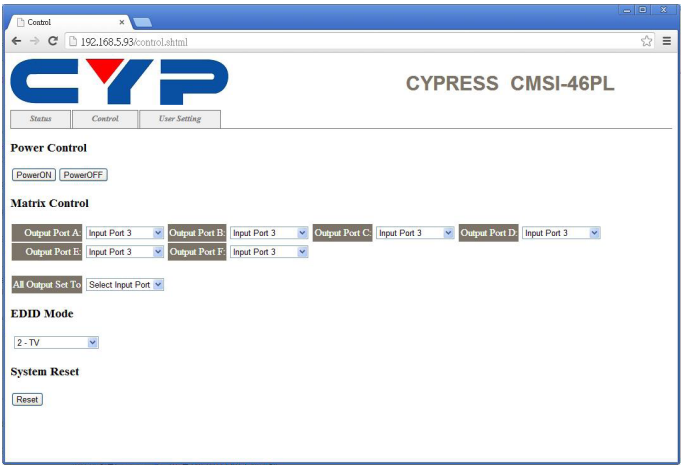
Note: *All the commands will be not executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.*

6.10 Web GUI Control

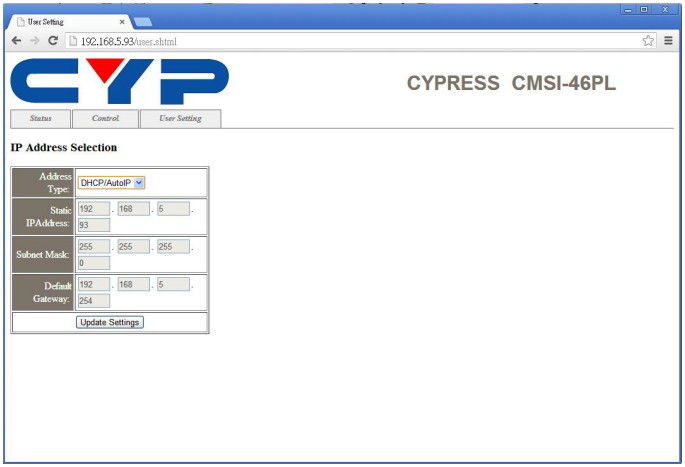
On a PC/Laptop that is connected to the same active network as the Matrix, open a web browser (suggest using Internet Explorer Browser ver.9 and above) and type device's IP address on the web address entry bar. The browser will display the device's status, control and User setting pages.



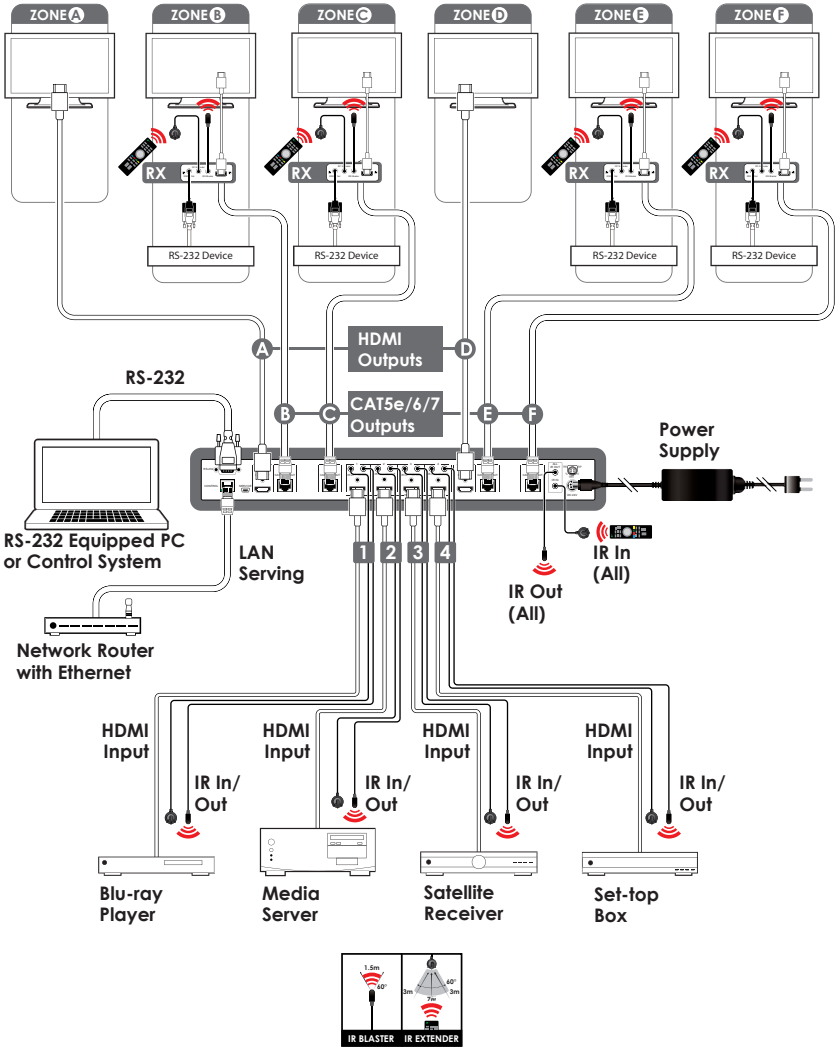
Click on the 'Control' tab to control power, input/output ports, EDID and reset mode.



Clicking on the 'User Setting' tab allows you to reset the IP configuration. The system will ask for a reboot of the device every time any of the settings are changed. The IP address needed to access the Web GUI control will also need to be changed accordingly on the web address entry bar.



7. CONNECTION DIAGRAM



8. SPECIFICATIONS

Video Bandwidth	225MHz/6.75Gbps
Input Ports	4 x HDMI, 5 x IR Extender, 1 x RS-232, 1 x LAN (Control only), 1 x RJ45 (Control Only), 1 x USB Mini-B (Service Only)
Output Ports	2 x HDMI, 4 x CAT5e/6/7, 5 x IR Blaster
Power Supply	24V / 3.75A DC (US/EU standards, CE/ FCC/UL certified)
ESD Protection	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Dimensions (mm)	436(W) x 249(D) x 44(H)/Jacks Excluded 436(W) x 255(D) x 48(H)/Jacks Included
Weight(g)	3334
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 (W)	40W

9. ACRONYMS

ACRONYM	COMPLETE TERM
DTS	Digital Theater System
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition multimedia Interface

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