



# CDPS-41SQ

4 x 1 HDMI Seamless Quad PIP Scaler



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         | 17/10/13      | Preliminary Release             |
| VR1         | 07/03/14      | Add Support Chart               |
| VR2         | 20/06/14      | Update RS-232 & OSD, Add WebGUI |
| VR3         | 18/07/14      | Add RS-232 Command              |

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## 1. INTRODUCTION

The 4 x 1 HDMI Seamless Quad PIP Scaler is a high performance, high speed zooming/shrinking system that can be easily configure and control for quad or picture-in-picture video processing. Allowing 4 different input sources to be freely selected and arranged on one single display with supporting output resolution up to 1080p and audio up to 8CH 192kHz for both input and output. Screen setting hot keys with IR and RS-232 & Telnet allows instant control and switching on the output display.

## 2. APPLICATIONS

- Broadcasting room and control
- Surveillance room and control
- Public advertisement and control
- Digital Presentation

## 3. PACKAGE CONTENTS

- 1 x 4 by 1 HDMI Seamless Quad PIP Scaler
- 1 x Remote Control (CR-124)
- 1 x 12V/3A DC Power Adaptor
- Operational Manual

## 4. SYSTEM REQUIREMENTS

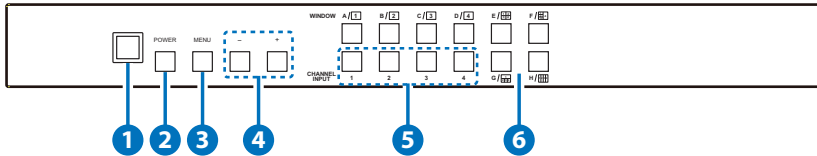
Input source equipments such as DVD/Blu-ray players and PC/NB devices and output HD TV/monitor.

## 5. FEATURES

- Seamless switching between channels and windows
- Zoom and Shrink 4CH input image and or to overlay them
- Supports PIP, POP and multi-windows display
- Supports OSD, RS-232, Telnet, Remote and on-panel controls
- Fade-In-Out, Chromakey, Mirror and Rotation (90° left & right and 180° up & down) functions
- 8 Screen setting hot keys and extra 4 customized favorite screen setting
- Support individual channel size and position adjustment

## 6. OPERATION CONTROLS AND FUNCTIONS

### 6.1 Front Panel



#### 1 IR Window

Accept IR signal from the device's remote control included in the package.

#### 2 POWER

Press this button to power ON the device or set it to standby mode.

#### 3 MENU

Press this button to bring up the OSD menu on screen.

#### 4 +/- Buttons

Press these buttons to scroll down/up the OSD selections.

#### 5 CHANNEL INPUT 1~4

Press these buttons to rotate HDMI 1~4 input source on each channel to be display on screen. All channels can select the same input or each channel a different input.

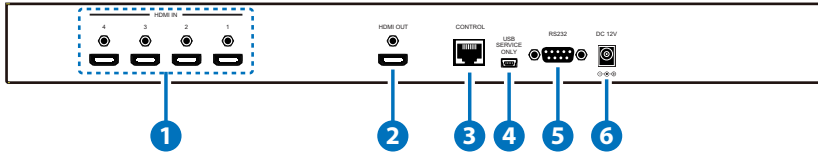
#### 6 WINDOW A~H

Press these hot keys to select the screen setting where A~D are display a full screen of each channel and E~H are a different combination of a full screen setting with all 4 channels.

Windows A~D's channel input selection is corresponding to channel input no. 1~4. That is, to change window A's input channel must press channel input 1's button. Channel input 2~4's button will not activate under window A's selection. Windows E~H's size are adjustable through the OSD menu setting and only window G is PIP(Picture in Picture) where E,F & H are POP (Picture out Of picture) settings.

Under window E~H when the size setting is overlapping one another, channel display sequence is CH4 > CH3 > CH2 > CH1. That is, CH4 will cover CH3 and CH3 will cover CH2 and so on. Under some display the borderline may have interference, adjusting display's motion setting may resolve the interference issue.

## 6.2 Rear Panel



### 1 HDMI IN

Connect with source equipments such as DVD/Blu-ray players and or PC/NB devices.

### 2 HDMI OUT

Connect with HD TV/monitor for output image display at 1080p.

### 3 CONTROL

Connect to an active network for Telnet control.

### 4 USB SERVICE ONLY

This slot is reserved for factory use only.

### 5 RS-232

Connect from PC/NB with D-Sub 15pin cable for RS-232 command sending.

### 6 DC 12V

Plug the 12V DC power supply into the unit and connect the adaptor to an AC outlet.



## 6.3 Remote Control

### 1 Power

Press this button to switch on the device or press it again to set it to standby mode.

### 2 Info

Press this button to show the device's firmware version.

### 3 Input CH 1~4

Press these buttons to rotate HDMI 1~4 input source on each channel to be display on screen

### 4 WA~WH

Press these hot keys to select the screen setting where WA~WD are display a full screen of each channel and WE~WH are a different combination of a full screen setting with all 4 channels.

### 5 Mute

Press this button to mute the audio from HDMI output port.

### 6 ▲▼▶◀ & OK Buttons

Press this buttons to scroll through the OSD selection and press OK to enter and confirm the setting.

### 7 Menu

Press this button to enter into the OSD menu.

### 8 Exit

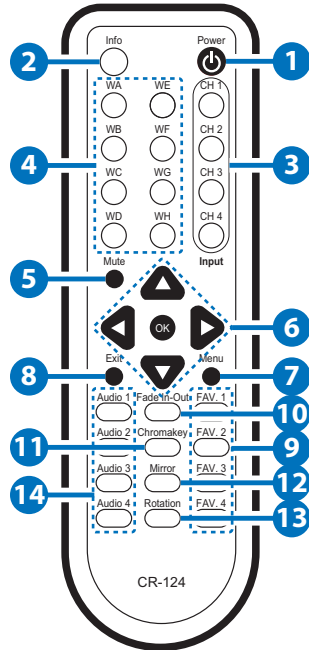
Press this button to exit the OSD menu or the OSD settings.

### 9 FAV. 1~4

Press these buttons to bring up the customized screen settings.

### 10 Fade-In-Out\*

Press this button to switch on or off the Fade-in-out function.





### 11 Chromakey\*

Press this button to enter into Chroma function where CH 1 is the background and CH 2 is the top image.

### 12 Mirror\*

Press this button to display the screen in mirror image.

### 13 Rotation\*

Press this button to rotate the image 90° left and right or 180° upside down.

### 14 Audio 1~4

Press these buttons to select audio from HDMI input source 1~4.

\* Functions only work under Window A to D. The system will force to switch to Window A when operate under Window E~H.

## 6.4 RS-232 Protocols

| CDPS-41SQ |            |   | 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 OSD MENU

| Main Menu    | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer  | 3 <sup>rd</sup> Layer |  |
|--------------|-----------------------|--|-----------------------|--|
| I/O Setup    | Output Resolution     | 480P, 579P, 720P50/60, 1080P24/25/30/50/60, 1024x768, 1280x800, 1280x1024, 1366x768, 1440x900, 1600x900, 1600x1200, 1680x1050, 1920x1200, NATIVE |                       |  |
|              |                       | Menu Back  |                       |  |
|              | OSD Settings          | Info Display   | On/ <b>Off</b>        |  |
|              |                       | H Offset   | 0~20 (5)              |  |
|              |                       | V Offset   | 0~20 (5)              |  |
|              |                       | Timeout  | <b>Off</b> ~50        |  |
|              |                       | Gain   | 0~10 (2)              |  |
| Menu Back    |                       |  |                       |  |
| Menu Exit    |                       |  |                       |  |
| Image Adjust | Brightness Adjust     | CH 1   | 0~100 (50)            |  |
|              |                       | CH 2   | 0~100 (50)            |  |
|              |                       | CH 3   | 0~100 (50)            |  |
|              |                       | CH 4   | 0~100 (50)            |  |
|              |                       | Value Reset  |                       |  |
|              |                       | Menu Exit  |                       |  |
|              | Contrast Adjust       | CH 1   | 0~100 (50)            |  |
|              |                       | CH 2   | 0~100 (50)            |  |
|              |                       | CH 3   | 0~100 (50)            |  |
|              |                       | CH 4   | 0~100 (50)            |  |
|              |                       | Value Reset  |                       |  |
|              |                       | Menu Exit  |                       |  |

| Main Menu    | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer |
|--------------|-----------------------|-----------------------|-----------------------|
|              | Hue Adjust            | CH 1                  | 0~100 (50)            |
|              |                       | CH 2                  | 0~100 (50)            |
|              |                       | CH 3                  | 0~100 (50)            |
|              |                       | CH 4                  | 0~100 (50)            |
|              |                       | Value Reset           |                       |
|              |                       | Menu Exit             |                       |
|              | Saturation            | CH 1                  | 0~100 (50)            |
|              |                       | CH 2                  | 0~100 (50)            |
|              |                       | CH 3                  | 0~100 (50)            |
|              |                       | CH 4                  | 0~100 (50)            |
|              |                       | Value Reset           |                       |
|              |                       | Menu Exit             |                       |
|              | Picture Reset         |                       |                       |
|              | Menu Exit             |                       |                       |
|              |                       |                       | CH1 Wxxx Hxxx         |
|              |                       |                       | Width Unit            |
|              |                       |                       | Width Ten             |
|              |                       | Size                  | Width Hundred         |
|              |                       |                       | Height Unit           |
|              |                       |                       | Height Ten            |
|              |                       |                       | Height Hundred        |
|              |                       |                       | CH1 Hxxx Vxxx         |
|              | Channel 1 Select      |                       | Horizontal Unit       |
|              |                       |                       | Horizontal Ten        |
| Window Setup |                       | Position              | Horizontal Hundred    |
|              |                       |                       | Vertical Unit         |
|              |                       |                       | Vertical Ten          |

| Main Menu    | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer    |
|--------------|-----------------------|-----------------------|--------------------------|
|              |                       |                       | Vertical Hundred         |
|              |                       | Image Output          | <b>On/Off</b>            |
|              |                       | Priority              | CH1→4,CH2→3, CH3→2,CH4→1 |
|              |                       | Window Reset          |                          |
|              |                       | Menu Exit             |                          |
|              |                       |                       | CH2 Wxxx Hxxx            |
|              |                       |                       | Width Unit               |
|              |                       |                       | Width Ten                |
|              |                       | Size                  | Width Hundred            |
|              |                       |                       | Height Unit              |
|              |                       |                       | Height Ten               |
|              |                       |                       | Height Hundred           |
|              |                       |                       | CH2 Hxxx Vxxx            |
|              | Channel 2 Select      |                       | Horizontal Unit          |
|              |                       |                       | Horizontal Ten           |
|              |                       | Position              | Horizontal Hundred       |
|              |                       |                       | Vertical Unit            |
|              |                       |                       | Vertical Ten             |
|              |                       |                       | Vertical Hundred         |
|              |                       | Image Output          | <b>On/Off</b>            |
|              |                       | Priority              | CH1→4,CH2→3, CH3→2,CH4→1 |
| Window Setup |                       | Window Reset          |                          |
|              |                       | Menu Exit             |                          |

| Main Menu | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer       |
|-----------|-----------------------|-----------------------|-----------------------------|
|           |                       |                       | CH3 Wxxx Hxxx               |
|           |                       |                       | Width Unit                  |
|           |                       |                       | Width Ten                   |
|           |                       | Size                  | Width Hundred               |
|           |                       |                       | Height Unit                 |
|           |                       |                       | Height Ten                  |
|           |                       |                       | Height Hundred              |
|           |                       |                       | CH3 Hxxx Vxxx               |
|           |                       |                       | Horizontal Unit             |
|           | Channel 3<br>Select   |                       | Horizontal Ten              |
|           |                       | Position              | Horizontal<br>Hundred       |
|           |                       |                       | Vertical Unit               |
|           |                       |                       | Vertical Ten                |
|           |                       |                       | Vertical<br>Hundred         |
|           |                       | Image Output          | <b>On</b> /Off              |
|           |                       | Priority              | CH1→4,CH2→3,<br>CH3→2,CH4→1 |
|           |                       | Window Reset          |                             |
|           |                       | Menu Exit             |                             |
|           |                       |                       | CH4 Wxxx Hxxx               |
|           |                       |                       | Width Unit                  |
|           |                       |                       | Width Ten                   |
|           |                       | Size                  | Width Hundred               |
|           |                       |                       | Height Unit                 |
|           |                       |                       | Height Ten                  |

| Main Menu    | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer       |
|--------------|-----------------------|-----------------------|-----------------------------|
| Window Setup |                       |                       | Height Hundred              |
|              |                       |                       | CH4 Hxxx Vxxx               |
|              |                       |                       | Horizontal Unit             |
|              |                       |                       | Horizontal Ten              |
|              | Channel 4 Select      | Position              | Horizontal Hundred          |
|              |                       |                       | Vertical Unit               |
|              |                       |                       | Vertical Ten                |
|              |                       |                       | Vertical Hundred            |
|              |                       | Image Output          | <b>On/Off</b>               |
|              |                       | Priority              | CH1→4,CH2→3,<br>CH3→2,CH4→1 |
|              |                       | Window Reset          |                             |
|              |                       | Menu Exit             |                             |
|              |                       | VIDEO 1               | VIDEO <b>1/2/3/4</b>        |
|              |                       | VIDEO 2               | VIDEO 1/ <b>2</b> /3/4      |
|              | Label Select          | VIDEO 3               | VIDEO 1/2/ <b>3</b> /4      |
|              |                       | VIDEO 4               | VIDEO 1/2/3/ <b>4</b>       |
|              |                       | Menu Exit             |                             |
|              |                       | FAV 1 Store           | ON/ <b>OFF</b> /OK          |
| Window Setup | Favours Store         | FAV 2 Store           | ON/ <b>OFF</b> /OK          |
|              |                       | FAV 3 Store           | ON/ <b>OFF</b> /OK          |
| FAV 4 Store  |                       | ON/ <b>OFF</b> /OK    |                             |
|              |                       | Menu Exit             |                             |
|              | Menu Exit             |                       |                             |
|              |                       | Mirror                | On/ <b>Off</b>              |

| Main Menu         | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer   |
|-------------------|-----------------------|-----------------------|---|
|                   |                       | Fade In-Out           | <b>Off</b> /1.0/1.1/1.2<br>Convert /1.3/1.4<br>/1.5/1.6/1.7/1.8/<br>1.9/2.0/2.1/2.2/<br>2.3/2.4/2.5/2.6/<br>2.7/2.8/2.9/3.0 |
|                   | Channel 1<br>Convert  | Rotation              | R90/L90/Up-Side<br>Down180/ <b>Off</b>  |
|                   |                       | Window Reset          |   |
| Window<br>Convert |                       | Menu Exit             |   |
|                   |                       | Mirror                | On/ <b>Off</b>  |
|                   |                       | Fade In-Out           | <b>Off</b> /1.0/1.1/1.2<br>Convert /1.3/1.4<br>/1.5/1.6/1.7/1.8/<br>1.9/2.0/2.1/2.2/<br>2.3/2.4/2.5/2.6/<br>2.7/2.8/2.9/3.0 |
|                   | Channel 2<br>Convert  | Rotation              | R90/L90/Up-Side<br>Down180/Off  |
|                   |                       | Window Reset          |   |
|                   |                       | Menu Exit             |   |
|                   |                       | Mirror                | On/ <b>Off</b>  |



| Main Menu           | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer | 3 <sup>rd</sup> Layer   |
|---------------------|-----------------------|-----------------------|---|
|                     | Channel 3<br>Convert  | Fade In-Out           | <b>Off</b> /1.0/1.1/1.2<br>Convert /1.3/1.4<br>/1.5/1.6/1.7/1.8/<br>1.9/2.0/2.1/2.2/<br>2.3/2.4/2.5/2.6/<br>2.7/2.8/2.9/3.0 |
|                     |                       | Rotation              | R90/L90/Up-Side<br>Down180/Off  |
|                     |                       | Window Reset          |   |
|                     |                       | Menu Exit             |   |
|                     | Channel 4<br>Convert  | Mirror                | On/ <b>Off</b>  |
|                     |                       | Fade In-Out           | <b>Off</b> /1.0/1.1/1.2<br>Convert /1.3/1.4<br>/1.5/1.6/1.7/1.8/<br>1.9/2.0/2.1/2.2/<br>2.3/2.4/2.5/2.6/<br>2.7/2.8/2.9/3.0 |
|                     |                       | Rotation              | R90/L90/Up-Side<br>Down180/Off  |
|                     |                       | Window Reset          |   |
|                     |                       | Menu Exit             |   |
| Chromakey<br>Setup* | Minimum For R         |                       | 000~255(0)  |
|                     | Maximum For R         |                       | 000~255(15)   |
|                     | Minimum For G         |                       | 000~255(0)  |
|                     | Maximum For G         |                       | 000~255(15)   |
|                     | Minimum For B         |                       | 000~255(0)  |
|                     | Maximum For B         |                       | 000~255(15)   |
|                     | Switch                |                       | ON/ <b>OFF</b>  |
|                     | Exit                  |                       |   |

| Main Menu      | 1 <sup>st</sup> Layer | 2 <sup>nd</sup> Layer  | 3 <sup>rd</sup> Layer |
|----------------|-----------------------|------------------------|-----------------------|
|                | IP Mode               | Static/ <b>DHCP</b>    |                       |
|                | Static Set            | IP/Mask/Gate           |                       |
|                | Byte1 High            | XXX <b>192 255 192</b> | 000~255               |
|                | Byte2                 | XXX <b>168 255 168</b> | 000~255               |
|                | Byte3                 | XXX <b>5 255 5</b>     | 000~255               |
|                | Byte4 Low             | XXX <b>159 0 254</b>   | 000~255               |
| Ethernet Setup | Re-Link               | <b>No/Yes</b>          |                       |
|                | Exit                  |                        |                       |
|                | Static/DHCP IP        | LINKED/NOT LINKED      |                       |
|                | IP                    | IP/Mask/Gate           |                       |
|                | Mask                  | XXX.XXX.XXX.XXX        |                       |
|                | Gate                  | XXX.XXX.XXX.XXX        |                       |
|                | Mac                   | XXX.XXX.XXX.XXX        |                       |
|                | Sink HDMI /DVI        |                        |                       |
| Information    | Model xxxxxxx         |                        |                       |
|                | Native xxxxxxx        |                        |                       |
|                | F/V version           |                        |                       |
| Menu Exit      |                       |                        |                       |

**Note: Bolditalic fonts and ( ) figures are factory default setting figures.**

\* Chromakey Setup works only under CH1 & CH2 where CH1 is the background and CH2 is the top layer.

This special function is designed for picture overlap video such as news reporter, weather forecast or educational video taping. CH2 the top layer's background color is usually a single color which can be easy for remove. RGB's setting is for CH2 video where the minimum setting figures cannot be greater than the maximum figures and the maximum figures cannot be lower than the minimum setting figures.

When input 1 or 2 has no source connection a warning message will appear on OSD.

## 6.6 RS-232 & Telnet Commands

| Command       | Description   |
|---------------|---|
| RESO 0~18     | SET OUTPUT RESOLUTION<br>(0) 480p, (1) 576p, (2) 720p 50Hz, (3) 720p 60Hz, (4) 1080p 24Hz, (5) 1080p 25Hz, (6) 1080p 30Hz, (7) 1080p 50Hz, (8) 1080p 60Hz, (9) 1024x768 60Hz, (10) 1280x800 60Hz, (11) 1280x1024 60Hz, (12) 1366x768 60Hz, (13) 1440x900 60Hz, (14) 1600x900 60Hz, (15) 1600x1200 60Hz, (16) 1680x1050 60Hz, (17) 1920x1200 60Hz, (18) Native |
| OSDDIS 0/1    | ENABLE/DISABLE ONSCREEN DISPLAY<br>(0) OFF, (1) ON  |
| OSDH 0~20     | OSD H OFFSET<br>0~20  |
| OSDV 0~20     | OSD V OFFSET<br>0~20  |
| OSDTIME 0~50  | OSD TIMEOUT<br>0~50   |
| OSDGAIN 0~10  | OSD GAIN VALUE<br>0~10  |
| BRI 0~4 0~100 | SET BRIGHTNESS VALUE FOR CHANNEL<br>(0) All,<br>(1~4) CHANNEL,<br>(0~100) VALUE   |
| CON 0~4 0~100 | SET CONTRAST VALUE FOR CHANNEL PORT<br>(0) All,<br>(1~4) CHANNEL,<br>(0~100) VALUE  |
| SAT 0~4 0~100 | SET SATURTATION VALUE FOR CHANNEL PORT<br>(0) All,<br>(1~4) CHANNEL,<br>(0~100) VALUE   |

| Command       | Description  |
|---------------|--|
| HUE 0~4 0~100 | SET HUE VALUE FOR CHANNEL PORT<br>(0) All,<br>(1~4) CHANNEL,<br>(0~100) VALUE  |
| HSIZE 1~4 0~X | SET IMAGE HORIZONTAL SIZE<br>(1~4) CHANNEL,<br>(0~X) X=HORIZONTAL PIXEL FOR CURRENT RESOLUTION   |
| VSIZE 1~4 0~X | SET IMAGE VERTICAL SIZE<br>(1~4) CHANNEL,<br>(0~X) X=VERTICAL PIXEL FOR CURRENT RESOLUTION   |
| HPOS 1~4 0~X  | SET HORIZONTAL POSITION OF SPECIFIED CHANNEL<br>(1~4) CHANNEL,<br>(0~X) X=HORIZONTAL PIXEL FOR CURRENT RESOLUTION  |
| VPOS 1~4 0~X  | SET VERTICAL POSITION OF SPECIFIED CHANNEL<br>(1~4) CHANNEL,<br>(0~X) X=VERTICAL PIXEL FOR CURRENT RESOLUTION  |
| IMAGE 1~4 0~1 | CHANNEL(S) OUTPUT ON/OFF<br>(1~4) CHANNEL,<br>(0/1) OFF/ON   |
| PRI 1~4 1~4   | SET CHANNEL PRIORITY<br>(1~4) CHANNEL,<br>(1~4) PRIORITY   |
| LABEL 1~4 XXX | ASSIGN A VIDEO NAME<br>(1~4) VIDEO,<br>(XXX) ABCDEFGH...   |
| STORE 1~4     | SAVE THE CURRENT WINDOW STATE TO FAV.<br>(1~4) FAV.  |
| RECALL 1~12   | RECALL A WINDOW STATE<br>(1) WINDOW A, (2) WINDOW B, (3) WINDOW C,<br>(4) WINDOW D, (5) WINDOW E, (6) WINDOW F, (7)<br>WINDOW G, (8) WINDOW H, (9) WINDOW FAV. 1, (10)<br>WINDOW FAV. 2, (11) WINDOW FAV. 3, (12) WINDOW<br>FAV. 4 |

| Command                     | Description   |
|-----------------------------|---|
| MIRROR 0/1                  | ENABLE/DISABLE MIRROR EFFECT<br>(0/1) OFF/ON  |
| FADE 0~21                   | ENABLE/DISABLE FADE EFFECTS<br>(0) OFF, (1) 1.0 s, (2) 1.1 s, (3) 1.2 s, (4) 1.3 s, (5) 1.4 s, (5) 1.5 s, (6) 1.6 s, (7) 1.7 s, (8) 1.8 s, (9) 1.9 s, (10) 2.0 s, (11) 2.1 s, (12) 2.2 s, (13) 2.3 s, (14) 2.4 s, (15) 2.5 s, (16) 2.6 s, (17) 2.7 s, (18) 2.8 s, (19) 2.9 s, (20) 3.0 s  |
| ROTATE 0~3                  | SET VIDEO ROTATION VIDEO TO PRESET POSITIONS<br>(0) ROTATE OFF, (1) R90, (2) L90, (3) 180   |
| CHRC R/G/B<br>MIN/MAX 0~255 | SET THE RGB COLOR RANGE FOR THE CHROMA KEY<br>(R/G/B) COLOR CHANNEL<br>(MIN/MAX) COLOR VALUE<br>(0~15) SET PRESENT VALUE 0~255<br><br>RGB MAX<br>(0)15, (1)31, (2)47, (3)63, (4)79, (5)95, (6)111, (7)127, (8)143, (9)159, (10)175, (11)191, (12)207, (13)223, (14)239, (15)255<br><br>RGB MIN<br>(0)00, (1)16, (2)32, (3)48, (4)64, (5)80, (6)96, (7)112, (8)128, (9)144, (10)160, (11)176, (12)192, (13)208, (14)224, (15)240 |
| CHRSW 0/1                   | SET THE CHROMA KEY ON/OFF<br>(0) OFF, (1) ON  |
| IPMODE 0/1                  | SET IP MODE TO DHCP OR STATIC<br>(0) DHCP, (1) STATIC   |
| IPADD XXX.XXX.<br>XXX.XXX   | SET IP ADDRESS<br>(XXX) 0~255   |
| MAADD XXX.<br>XXX.XXX.XXX   | SET SUBNET ADDRESS<br>(XXX) 0~255   |
| GAADD XXX.<br>XXX.XXX.XXX   | SET GATEWAY ADDRESS<br>(XXX) 0~255  |

| Command       | Description  |
|---------------|--|
| ETHTIME 0~6   | ETHERNET TIMEOUT<br>(0) OFF, (1) 10 MINUTE, (2) 20 MINUTE, (3) 30 MINUTE,<br>(4) 40 MINUTE, (5) 50 MINUTE, (6) 60 MINUTE |
| RELINK        | RELINK THE UNIT IN 2 SECONDS   |
| DEFAULT       | RESET THE UNIT TO FACTORY DEFAULTS   |
| VICH 1~4 0~4  | VIDEO CHANNEL COMMAND<br>(1~4) VIDEO,<br>(0) ALL CHANNEL OUTPUTS,<br>(1~4) CHANNEL OUTPUTS                               |
| MUTE 0/1      | MUTE AUDIO<br>(0) OFF, (1) ON  |
| POW 0/1       | POWER THE UNIT ON/OFF<br>(0) OFF, (1) ON   |
| AUDIO 1~4     | CHANGE OUTPUT AUDIO TO SPECIFIED SOURCE<br>(1~4) AUDIO SOURCE  |
| IMRE B/C/S/H  | RESET THE IMAGE TO FACTORY DEFAULTS<br>(B) BRIGHTNESS, (C) CONTRAST, (S) SATURATION, (H) HUE                             |
| PIRE          | RESET THE UNIT PICTURE SETTINGS TO FACTORY DEFAULTS  |
| CHRE 0~4      | <i>RESET THE WINDOWS SETTINGS TO FACTORY DEFAULTS<br/>(0) ALL CHANNEL OUTPUTS,<br/>(1~4) CHANNEL OUTPUTS</i>             |
| <b>WICORE</b> | <b>RESET THE WINDOW CONVERT TO FACTORY DEFAULTS</b>  |
| RIPM          | SHOW CURRENT IP MODE   |
| IPCONFIG      | SHOW IP CONFIGURATION  |
| HELP          | PRINTS ALL AVAILABLE RS-232/TELNET COMMANDS TO THE SCREEN  |
| ?             | PRINTS ALL AVAILABLE RS-232/TELNET COMMANDS TO THE SCREEN  |

| Command | Description            |
|---------|------------------------|
| WND001  | Change to Window A     |
| WND002  | Change to Window B     |
| WND003  | Change to Window C     |
| WND004  | Change to Window D     |
| WND005  | Change to Window E     |
| WND006  | Change to Window F     |
| WND007  | Change to Window G     |
| WND008  | Change to Window H     |
| CH1001  | Change CH1 to Source 1 |
| CH1002  | Change CH1 to Source 2 |
| CH1003  | Change CH1 to Source 3 |
| CH1004  | Change CH1 to Source 4 |
| CH2001  | Change CH2 to Source 1 |
| CH2002  | Change CH2 to Source 2 |
| CH2003  | Change CH2 to Source 3 |
| CH2004  | Change CH2 to Source 4 |
| CH3001  | Change CH3 to Source 1 |
| CH3002  | Change CH3 to Source 2 |
| CH3003  | Change CH3 to Source 3 |
| CH3004  | Change CH3 to Source 4 |

| Command       | Description                           |
|---------------|---------------------------------------|
| CH4001        | Change CH4 to Source 1                |
| CH4002        | Change CH4 to Source 2                |
| CH4003        | Change CH4 to Source 3                |
| CH4004        | Change CH4 to Source 4                |
| IO1000        | CH1 Image OFF                         |
| IO1001        | CH1 Image ON                          |
| IO2000        | CH2 Image OFF                         |
| IO2001        | CH2 Image ON                          |
| IO3000        | CH3 Image OFF                         |
| IO3001        | CH3 Image ON                          |
| IO4000        | CH4 Image OFF                         |
| IO4001        | CH4 Image ON                          |
| MUT000        | Mute Off                              |
| MUT001        | Mute On                               |
| AUD001        | Change Output Audio to Source 1       |
| AUD002        | Change Output Audio to Source 2       |
| AUD003        | Change Output Audio to Source 3       |
| AUD004        | Change Output Audio to Source 4       |
| <b>FAD000</b> | <b>Fade In-Out Off</b>                |
| <b>FAD001</b> | <b>Fade In-Out On</b>                 |
| <b>CHR000</b> | <b>Chroma Key Function Off</b>        |
| <b>CHR001</b> | <b>Chroma Key Function On</b>         |
| <b>MIR000</b> | <b>Mirror Function Off</b>            |
| <b>MIR001</b> | <b>Mirror Function On</b>             |
| <b>ROT000</b> | <b>Rotation Function Off</b>          |
| <b>ROT001</b> | <b>Rotation Function R</b>            |
| <b>ROT002</b> | <b>Rotation Function L</b>            |
| <b>ROT003</b> | <b>Rotation Function Up-Side Down</b> |



| Command       | Description                          |
|---------------|--------------------------------------|
| <i>SFA001</i> | <i>Store window format to FAV 1*</i> |
| <i>SFA002</i> | <i>Store window format to FAV 2*</i> |
| <i>SFA003</i> | <i>Store window format to FAV 3*</i> |
| <i>SFA004</i> | <i>Store window format to FAV 4*</i> |
| <i>RFA001</i> | <i>Recall window from FAV 1</i>      |
| <i>RFA002</i> | <i>Recall window from FAV 2</i>      |
| <i>RFA003</i> | <i>Recall window from FAV 3</i>      |
| <i>RFA004</i> | <i>Recall window from FAV 4</i>      |
| POW000        | OFF                                  |
| POW001        | ON                                   |

*Commands with Italic fonts are only functioning under Window E~H and FAV.1~4*

**Commands with Bold fonts are only functioning under Window A~D**

## 6.7 Telnet Control

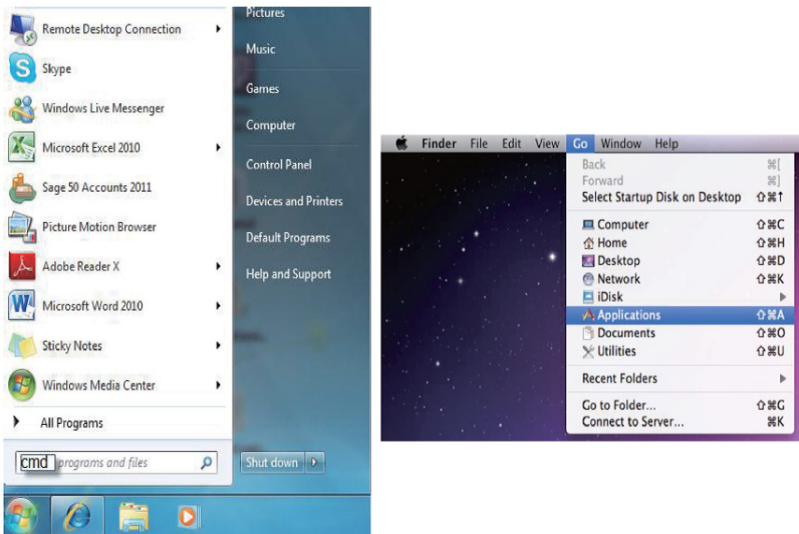
Before attempting to use the telnet control, please ensure that both the Scaler (via the 'CONTROL' port) and the PC/Laptop are connected to the active networks.

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.

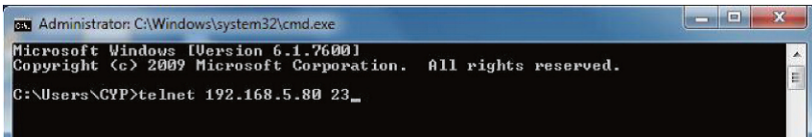
Under Mac OS X, go to Go→Applications→Utilities→Terminal

See below for reference.



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

**Note:** The IP address of the Scaler can be found under Ethernet Setup on the device's OSD menu.



This will bring us into the device which we wish to control. Type "?" to lists all the available commands.



```

Telnet 192.168.5.159
RESO
OSDDIS
OSDH
OSDU
OSDTIME
OSDEGIN
BRI
CON
SAT
HUE
HSIZE
VSIZE
HPOS
VPOS
IMAGE
PRI
LABEL
STORE
RECALL
MIRROR
PADE
ROTATE
CHRC
CHRSU
IPMODE
IFADD
MADD
GRADD
ETHTIME
RELINK
DEFAULT
MICH
MUTE
POU
AUDIO
IMBE
PIRE
CHRE
MTCORE
RIM
IPCONFIG
HELP
?

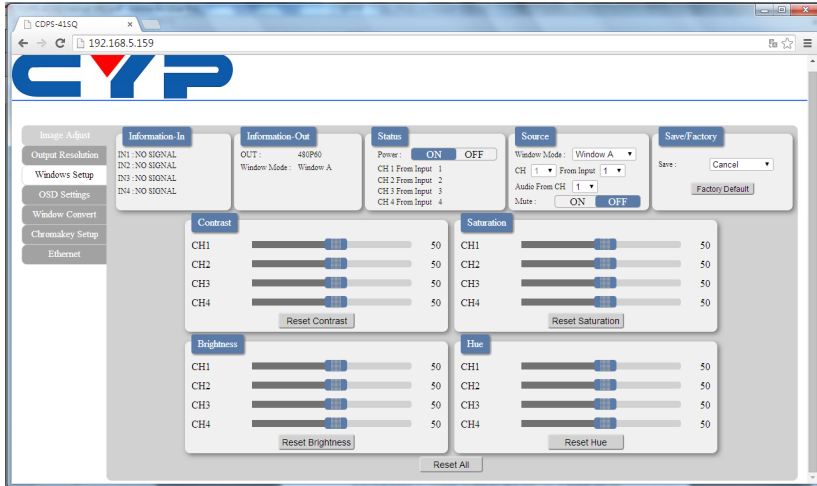
```

Type "IPCONFIG" To show all IP configurations. To reset the IP, type "IPMODE" to set static IP/DHCP (For a full list of commands, see Section 6.6).

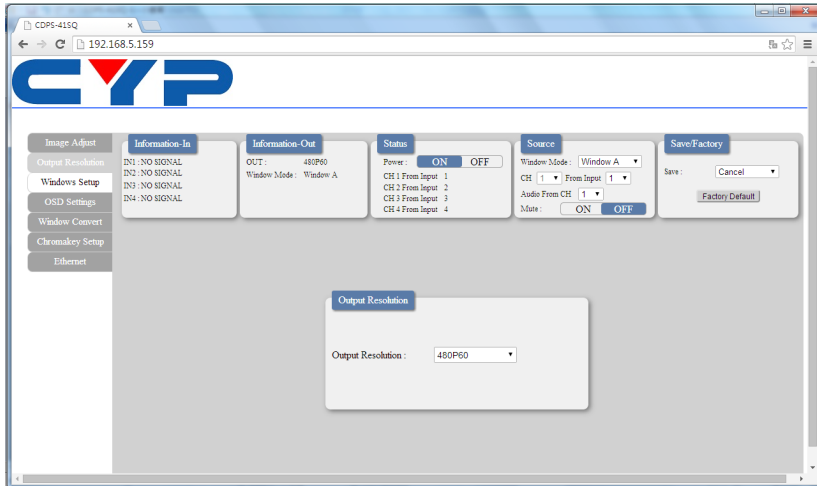
**Note:** All the commands will be not executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also need to be change accordingly. A power relink is also required for every IP change.

## 6.8 WebGUI Control

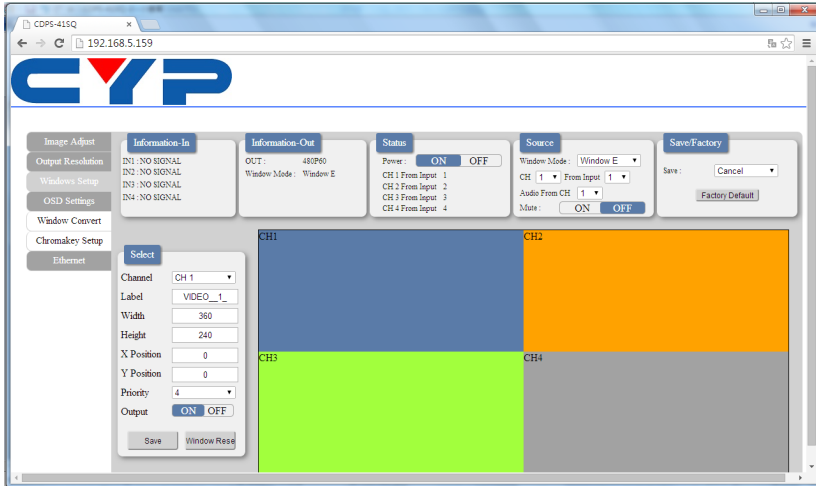
On a PC/Laptop that is connected to an active network as the Scaler, open a web browser and type device's IP address on the web address entry bar. The browser will display the device's Image Adjust, Output Resolution, and ... etc.



Click on the 'Image Adjust' tab to control power, Window Mode and the window setting.

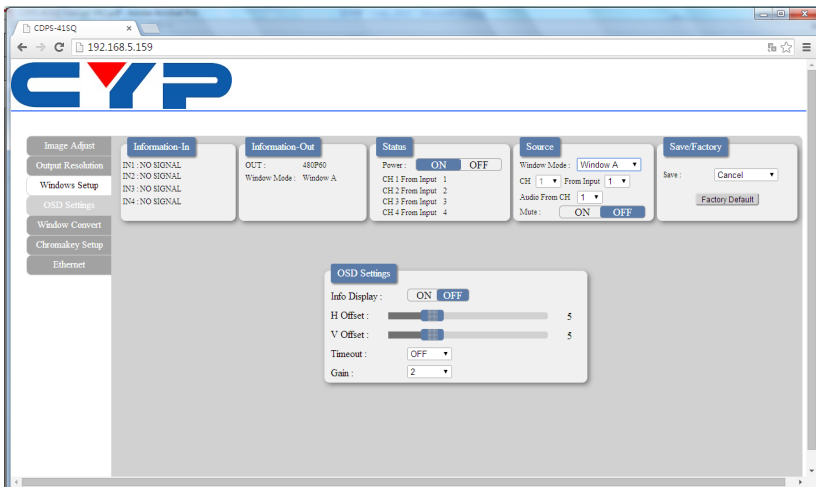


Clicking on the 'Output Resolution' tab to set the output display resolution.

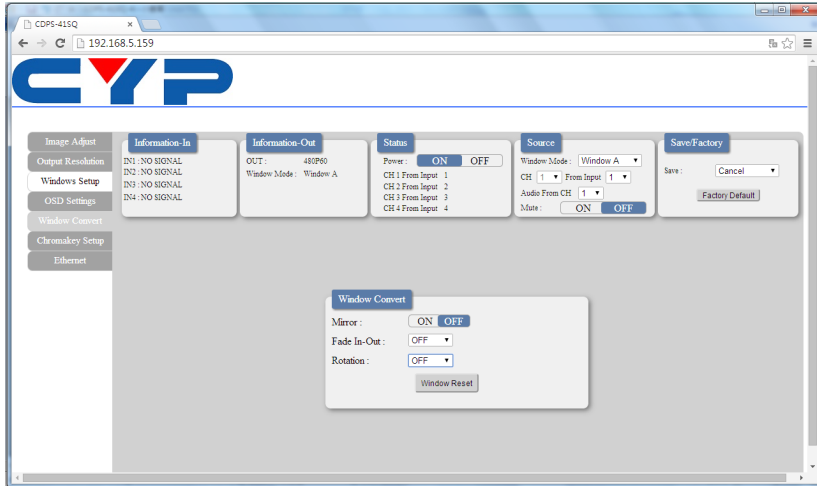


Clicking on the 'Windows Setup' tab to set the output display fomate.

**Note: This function is only available under window E~H.**

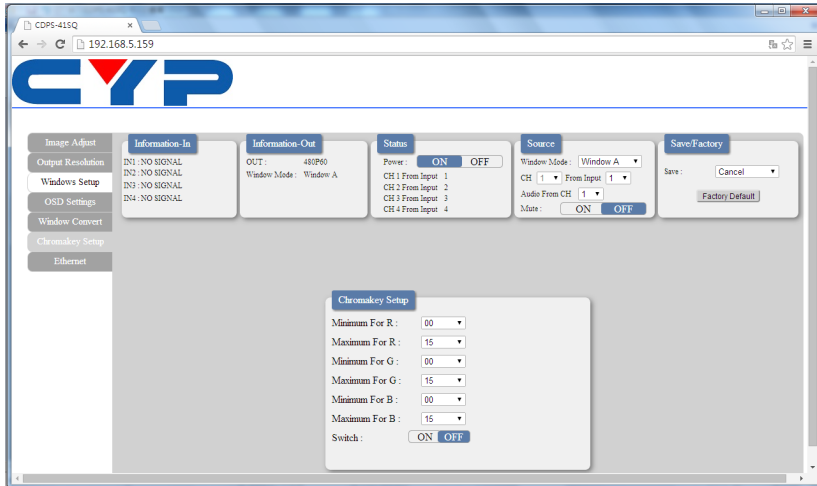


Clicking on the 'OSD Settings' tab to set the OSD function and position.



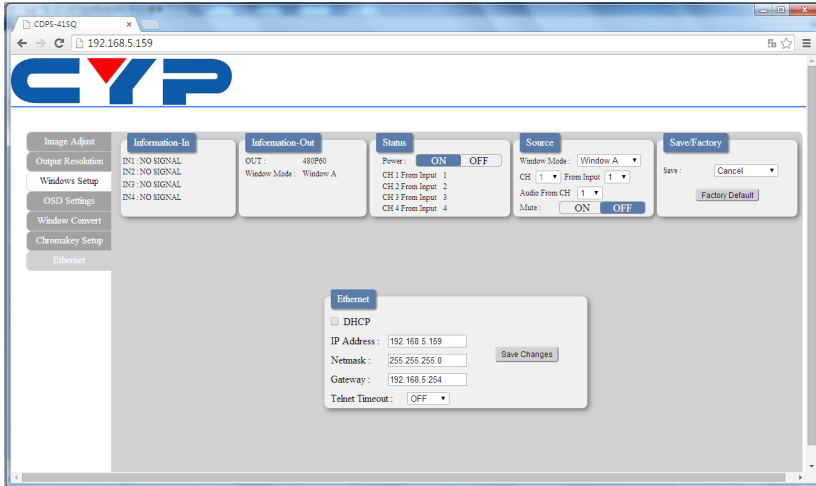
Clicking on the 'Window Convert' tab to set the output display angle.

**Note: This function is only available under window A~D.**



Clicking on the 'Chromakey Setup' tab to set the output display color.

**Note: This function is only available under window E~H.**



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

**Note:** All command will be not executed unless followed with a carriage return and commands are case-insensitive.



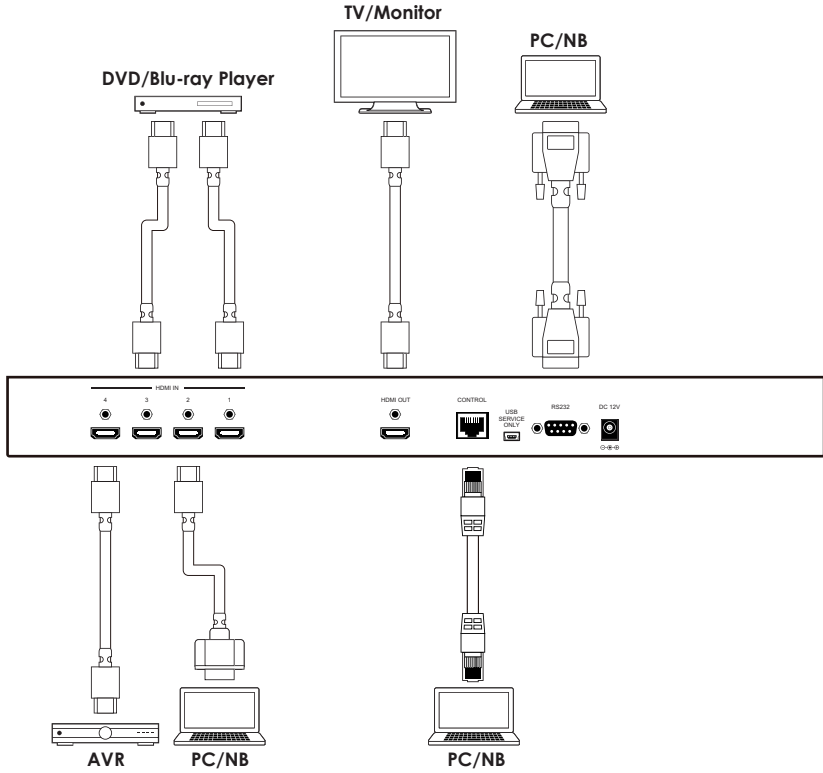
## 7. SPECIFICATIONS

|                                   |   |
|-----------------------------------|---|
| <b>Video Bandwidth</b>            | 225MHz/6.75Gbps   |
| <b>Input Ports</b>                | 4x HDMI   |
| <b>Output Port</b>                | 1 x HDMI  |
| <b>Supports Input Resolution</b>  | PC:VGA~WUXGA, HD: 480i~1080p  |
| <b>Supports Output Resolution</b> | 1080p@60  |
| <b>HDMI Input Cable Distance</b>  | Up to 15M/1080p@12 bits   |
| <b>HDMI Output Cable Distance</b> | Up to 15M/1080p@8 bits  |
| <b>Supports Sampling Rate</b>     | 32~192kHz   |
| <b>ESD Protection</b>             | Human body model:<br>±8kV (air-gap discharge)<br>±4kV (contact-gap discharge) |
| <b>Power Supply</b>               | 12V/3A DC (US/EU standards, CE/FCC/UL certified)                              |
| <b>Dimensions</b>                 | 436mm(W) x 247mm(D) x 44mm(H)   |
| <b>Weight</b>                     | 2200g   |
| <b>Chassis Material</b>           | Aluminum  |
| <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 (non-condensing)  |
| <b>Power Consumption</b>          | 18W   |



| HDMI Supported Resolutions | Input | Output |
|----------------------------|-------|--------|
| 640x480@60,72,75,85        | ✓     |        |
| 800x600@56,60,72,75,85     | ✓     |        |
| 1024x768@60,70,75,85       | ✓     | V@60   |
| 1360x768@60                | ✓     |        |
| 1280x768@60,75             | ✓     |        |
| 1280x800@60                |       | V      |
| 1280x1024@60,75            | ✓     | V@60   |
| 1366x768@60                | ✓     | V      |
| 1440x900@60                |       | V      |
| 1600x900@60                |       | V      |
| 1600x1200@60               | ✓     | V      |
| 1680x1050@60               |       | V      |
| 1920x1200@60               | ✓     | V      |
| 480i60                     | ✓     |        |
| 576i50                     | ✓     |        |
| 480p60                     | ✓     | V      |
| 576p50                     | ✓     | V      |
| 720p50                     | ✓     | V      |
| 720p60                     | ✓     | V      |
| 1080i50                    | ✓     |        |
| 1080i60                    | ✓     |        |
| 1080p24                    | ✓     | V      |
| 1080p25                    |       | V      |
| 1080p30                    |       | V      |
| 1080p50                    | ✓     | V      |
| 1080p60                    | ✓     | V      |

## 8. CONNECTION AND INSTALLATION







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