

CYP



4k x 2k

OR-HD62CD

6 x 2 UHD HDMI Switch with Audio De-Embedding

/// OPERATION MANUAL

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SAFETY PRECAUTIONS

Please read all instructions before attempting to unpack, install or operate this equipment and before connecting the power supply.

Please keep the following in mind as you unpack and install this equipment:

- Always follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Never spill liquid of any kind on or into this product.
- Never push an object of any kind into this product through any openings or empty slots in the unit, as you may damage parts inside the unit.
- Do not attach the power supply cabling to building surfaces.
- Use only the supplied power supply unit (PSU). Do not use the PSU if it is damaged.
- Do not allow anything to rest on the power cabling or allow any weight to be placed upon it or any person walk on it.
- To protect the unit from overheating, do not block any vents or openings in the unit housing that provide ventilation and allow for sufficient space for air to circulate around the unit.

REVISION HISTORY

| VERSION NO. | DATE | SUMMARY OF CHANGE |
|-------------|------------|--|
| v1.00 | 20/01/2014 | First release |
| v1.01 | 02/04/2014 | Updated Introduction |
| v1.02 | 21/05/2014 | 4K Support Note |
| v1.03 | 08/08/2014 | Updated RS-232 commands, Preview and PIP Functions, DVI Compliance |

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1. INTRODUCTION

The OR-HD62CD allows HDMI signals to be routed from any of the six connected HDMI sources for display on two connected HDMI displays. With fast switching technology this device dramatically improves the sync time to the connected HDMI displays over traditional switchers. In Matrix Mode, it allows any source to be routed independently to any output. An on-board EDID management tool (via on screen display) can be utilised for advanced audio and video signal management. In addition, this switcher also includes a cutting edge Picture in Picture (PIP) preview mode allowing the user to show 5 unselected HDMI sources in a row of small windows overlaid on top of the primary selected HDMI source video. In preview mode, both HDMI outputs show identical feeds. Further features include the ability to de-embed Hi-Definition lossless audio via a dedicated Optical output for each HDMI output, 4K resolution support, and 3D signal support.

Control is via front panel buttons, IR remote control, RS-232, Telnet or IP control for easy integration into control systems such as Control 4.

2. APPLICATIONS

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

3. PACKAGE CONTENTS

- /// 6 by 2 HDMI 4Kx2K Matrix
- /// Remote Control with Battery
- /// Left & Right Rack Ears
- /// 5V/2.6A DC Power Adaptor
- /// IR Receiver Cable
- /// Operation Manual

4. SYSTEM REQUIREMENTS

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

5. FEATURES

- /// HDMI, HDCP 1.1, DVI 1.0* compliant
- /// Resolutions supported: HDTV - 480i to 1080p plus 1080p24fps, and 4K2K; PC - VGA to WUXGA;
- /// High Definition audio supported: Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio + 7.1 Channel LPCM
- /// RS-232, Telnet or IP Control, IR Remote Control (supplied), Web GUI Control
- /// Supports audio extraction from HDMI input to Optical output, input audio sampling rate up to 192 kHz
- /// Ability to switch between any two sources within 1 second
- /// Built-in EDID Management
- /// Supports 3D and 4K signals
- /// Cutting edge Picture in Picture preview function:

When in Preview mode, the system will be treated as a Switcher (two simultaneous HDMI outputs)

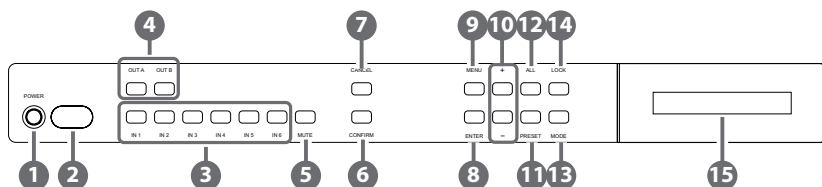
In Preview mode, the unit supports 'View All' (1 Main video source and 5 Sub video sources) and 'PIP' (1 Main video source and 1 Sub video source). 3D and 4Kx2K sources inputs are not supported for sub-windows

Note: View All is TDM (Time Division Multiplexing display)

**Supports HDMI to DVI conversion when the HDMI source is not 'deep colour' and has an RGB color space. Does not support HDMI to DVI conversion of a HDMI source that is 'deep color' and has a colour space that is YCbCr 444/422*

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



- 1 **POWER:** Press this button to turn ON the device, the LED will illuminate.
- 2 **IR Window:** This IR Receiver receives the remote control signal from the device's remote control only.
- 3 **IN 1~6:** Press these IN buttons to select an input from the 6 input sources.
- 4 **OUT A/B:** Press these buttons in combination with with the IN buttons to select an input source for an output display i.e. OUT A→ IN 1→CONFIRM or OUT B→ IN 6→CONFIRM.
- 5 **MUTE:** Press this button to mute video and audio on OUT A or B.
- 6 **CONFIRM:** Press this button to confirm the selection of an IN and an OUT button.
- 7 **CANCEL:** Press this button to cancel the IN/OUT selection.
- 8 **ENTER:** Press to confirm the selection.
- 9 **MENU:** Press to enter into the menu.
- 10 **+/-:** Press these buttons to navigate up/down the menu.
- 11 **PRESET:** (PV MUTE: Preview ON/OFF)
 - When in Preview mode, press the button to turn ON/OFF the Sub video windows.
 - When in Matrix mode, press "PRESET" to switch between Normal and Preset mode.
 - ✓ *Normal mode:*
Press OUT A or OUT B or ALL and then press IN 1~6 or MUTE to select the input sources. After the selection, press "CONFIRM" to confirm the selection or press "CANCEL" to cancel the selection.

- ✓ *Preset mode:*
Press "PRESET", the OLED menu will show Preset then select IN 1~6. Preset 1~6 after the selection, press "CONFIRM" to confirm the selection or press "CANCEL" to cancel the selection.

12 All: (SWAP)

Press this button to select all outputs to display with an input source. When in PIP mode, press to swap between Main video source and Sub video source.

13 MODE: Press to switch between Preview or Matrix mode.

- Preview mode: From MENU option select View All (1 Main video sources and 5 Sub video sources) or PIP mode (1 Main video sources and 1 Sub video sources).

Note: Under Preview mode, OSD display on output B only.

- ✓ View All: Press IN 1~6 or MUTE to select the Main channel. From OLED menu select "Preview Position" for Sub screens position.

Note: All sub screens will be displayed in order for about 0.5 second: Those screens that are not displayed will be frozen.

- ✓ PIP: Press OUT A (Main) or OUT B, then press IN1~6 or MUTE to select Main or Sub video source. Press "ALL" or Remote Control "SWAP" to exchange Main/Sub video source.

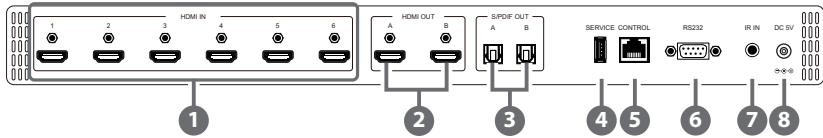
Note: When both Main and Sub select the same input source, Sub will be muted.

- Matrix mode: Press OUT A or OUT B or OUT A & B and then press IN 1~6 or MUTE to select the input sources. After the selection, press "TAKE" to confirm the selection or press "CANCEL" to cancel the selection.

14 LOCK: Press this button to lock all button functions on the panel. Press for 3 seconds to cancel the lock function.

15 LCM: Displays Input and Outputs selection and menu selection.

6.2 Rear Panel



- 1 HDMI IN:** Connect from source equipments such as Blu-ray/DVD/PS3 players, Set-Top-Box or any HDMI equipped source device for input signal sending.
- 2 HDMI OUT:** Connect to HDMI TV/display or HD Amplifier for output image and or audio display.
- 3 S/PDIF OUT:** Connect to audio sound system or Amplifier for digital output sound.
- 4 SERVICE:** This slot is reserved for firmware update use only.
- 5 CONTROL:** Connect from PC/Laptop with active internet service for Web GUI control with RJ-45 terminated cable.
- 6 RS232:** Connect from PC/Laptop for RS-232 command sending to control the device.
- 7 IR IN:** Connect the IR Receiver included in the package for IR signal receive from the included remote control.
- 8 DC 5V:** Connect the adaptor with power cord included in the package and connect to AC wall outlet for power supply.

6.3 OSD Menu

| Main Menu | Sub Menu | Description | Default |
|-----------|------------------------|---|--------------------|
| EDID Mode | All | All Input port is using same EDID. In menu "EDID All", can select suitable EDID. | All |
| | Appoint | Each Input port can select individual EDID. In menu "EDID IN1~6" select suitable EDID. | |
| | Exit | | |
| EDID All | Sink A | Copy Output A display EDID | 8/2D/ PCM/1080p |
| | Sink B | Copy Output B display EDID | |
| | 8/2D/ PCM/720p | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/PCM/ AC3/720p | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/ PCM/1080p | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/PCM/ AC3/1080p | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/ PCM/4K2K | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/PCM/ AC3/4K2K | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |

| Main Menu | Sub Menu | Description | Default |
|---------------|-------------------------|---|---------------|
| | 8/2D/PCM/ Y420 | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | 8/2D/PCM/ AC3/Y420 | Standard EDID, Content: deep color/2D3D/audio/ native resolution | |
| | Exit | | |
| EDID IN1 | Same EDID All | Select Input 1's EDID | Same EDID All |
| EDID IN2 | Same EDID All | Select Input 2's EDID | Same EDID All |
| EDID IN3 | Same EDID All | Select Input 3's EDID | Same EDID All |
| EDID IN4 | Same EDID All | Select Input 4's EDID | Same EDID All |
| EDID IN5 | Same EDID All | Select Input 5's EDID | Same EDID All |
| EDID IN6 | Same EDID All | Select Input 6's EDID | Same EDID All |
| Matrix Preset | Preset 1 | IN/OUT default No.1 | A=1 , B=2 |
| | Preset 2 | No.2 | A=1 , B=2 |
| | Preset 3 | No.3 | A=1 , B=2 |
| | Preset 4 | No.4 | A=1 , B=2 |
| | Preset 5 | No.5 | A=1 , B=2 |
| | Preset 6 | N0.6 | A=1 , B=2 |
| | Exit | | |
| HDCP Input | IN1 Standard/ Apple | Set IN1 in Apple/ Standard mode | Standard |
| | IN2 Standard / Apple | Set IN2 in Apple/ Standard mode | Standard |
| | IN3 Standard / Apple | Set IN3 in Apple/ Standard mode | Standard |
| | IN4 Standard / Apple | Set IN4 in Apple/ Standard mode | Standard |
| | IN5 Standard / Apple | Set IN5 in Apple/ Standard mode | Standard |

| Main Menu | Sub Menu | Description | Default | |
|------------------|----------------------|--|--------------------------------|----------|
| | IN6 Standard / Apple | Set IN6 in Apple/ Standard mode | Standard | |
| | Exit | | | |
| Preview Mode | View All | 1 Main video source and 5 Sub video source | View All | |
| | PIP | 1 Main video source and 1 Sub video source | | |
| | Exit | | | |
| Preview Position | View ALL | Top | Preview 5 Sub screens position | Top |
| | | Right | Preview 5 Sub screens position | |
| | | Bottom | Preview 5 Sub screens position | |
| | | Left | Preview 5 Sub screens position | |
| | PIP | Top Left | Preview Sub screen position | Top Left |
| | | Top Right | Preview Sub screen position | |
| | | Bottom Right | Preview Sub screen position | |
| | | Bottom Left | Preview Sub screen position | |
| | | Exit | | |
| OSD Transparency | 0~15 | Preview OSD background transparency | 6 | |
| OSD Timeout | Exit | | OSD Always On | |
| | OSD Off | Preview without OSD Info | | |
| | 5~20 | Preview with OSD Info 5~20 sec and disappear | | |
| | OSD Always On | Preview with OSD Info remain ON | | |

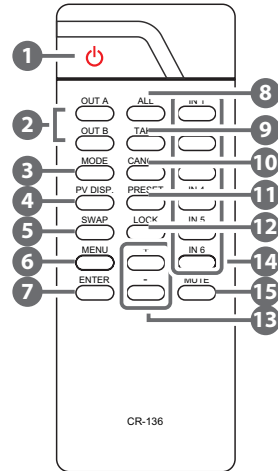
| Main Menu | Sub Menu | Description | Default |
|------------------|----------------------------|---|---------------|
| | Exit | | |
| Network Setup | IP Mode | DHCP , Static | DHCP |
| | IP | Setup Static IP | 192.168.5.83 |
| | Mask | Setup Static Netmask | 255.255.255.0 |
| | Gate | Setup Static Gateway | 192.168.5.254 |
| | Do Re-Link | Re-Link. After setup Network, the system need to re- link | --- |
| | Exit | | |
| Network Status | Link | Network status DHCP,Static or Not Linked | --- |
| | IP | Get IP | --- |
| | Mask | Get Netmask | --- |
| | Gate | Get Gateway | --- |
| | MAC | System MAC Address | --- |
| | Exit | | |
| Source Detection | IN1 On/Off , IN2 On/Off | IN1 , IN2 detect source with/without the signal | --- |
| | IN3 On/Off , IN4 On/Off | IN3 , IN4 detect source with/without the signal | |
| | IN5 On/Off , IN6 On/Off | IN5 , IN6 detect source with/without the signal | |
| | Exit | | |
| Sink A Info | Type, Manuf. | Detect and Analysis Output A display's EDID Content: type(HDMI/ DVI/VGA), Manufactory/Model number | --- |
| | Native | Content: native resolution | |

| Main Menu | Sub Menu | Description | Default |
|---------------|------------------|---|---------|
| | Video Format | Content: deep color, 2D or 3D, 4K2K | |
| | Audio Format | Content:PCM, BitStream, HBR | |
| | Exit | | |
| Sink B Info | Same Sink A Info | Detect and Analysis Output B display's EDID | --- |
| Firmware | FW Version | Display the model number and FW version | --- |
| | Update | FW Update | |
| | Exit | | |
| Factory Reset | Do Reset | Do system Reset | --- |
| | Exit | | |
| Exit | | | |

Note: Under Preview mode, OSD display on output B only.

6.4 Remote Control

- 1 **POWER:** Press this button to switch the system ON/OFF.
- 2 **OUT A/B:** Press these buttons once a time along with an IN buttons to select an input source for an output display.
- 3 **MODE:** Press to switch between Preview or Matrix mode.
 - Preview mode: From MENU option select View All (1 Main video sources and 5 Sub video sources) or PIP mode (1 Main video sources and 1 Sub video sources).
 - ✓ View All: Press IN 1~6 or MUTE to select the Main channel. From OLED menu select "Preview Position" for Sub screens position.
 - ✓ PIP: Press OUT A (Main) or OUT B, then press IN1~6 or MUTE to select Main or Sub video source. Press "ALL" or Remote Control "SWAP" to change Main/Sub video source.
 - Matrix mode: Press OUT A or OUT B or OUT A & B and then press IN 1~6 or MUTE to select the input sources. After the selection, press "TAKE" to confirm the selection or press "CANCEL" to cancel the selection.
- 4 **PV DISP:** Press to set ON/OFF the Preview Display.
- 5 **SWAP:** In PIP mode, press to swap Main/Sub video source.
- 6 **MENU:** Press to enter into the menu.
- 7 **ENTER:** Press to confirm the selection.
- 8 **ALL:** Press this button to select all outputs to display with an input source.
- 9 **TAKE:** Press this button to confirm the selection of an IN and an OUT button.
- 10 **CANCEL:** Press this button to cancel the IN/OUT selection.
- 11 **PRESET:**
 - When select the MODE in Matrix mode, press "PRESET" to switch between Normal and Preset mode.



- ✓ Normal mode:
Press OUT A or OUT B or ALL and then press IN 1~6 or MUTE to select the input sources. After the selection, press "TAKE" to confirm the selection or press "CANCEL" to cancel the selection.
- ✓ Preset mode:
Press "PRESET", the OLED menu will showing Preset and select IN 1~6. After preset 1~6, press "TAKE" to confirm the selection or press "CANCEL" to cancel the selection.

- 12 **LOCK:** Press this button to lock all button functions on the panel. Press 3 seconds to relieve the lock function.
- 13 **+/-:** Press these buttons to move up/down under menu selection.
- 14 **IN1~6:** Press the IN buttons to select an input from the 6 input sources.
- 15 **MUTE:** Press this button to mute video and audio that OUTA/B selected.

6.5 RS-232 Protocols

| OR-HD62CD | | | 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

6.6 RS-232 & Telnet Commands

| Command Name | Description | Description of parameter |
|--------------------------------------|-------------------------------------|--------------------------|
| P0 | POWER OFF | NONE |
| P1 | POWER ON | NONE |
| IPCONFIG | DISPLAY THE CURRENT IPCONFIG | NONE |
| SIPADDR XXX. XXX.XXX.XXX | SET ETHERNET IP AD- DRESS | XXX=0~255 |
| SNETMASK XXX. XXX.XXX.XXX | SET ETHERNET NETMASK | XXX=0~255 |
| SGATEWAY XXX. XXX.XXX.XXX | SET ETHERNET GATEWAY | XXX=0~255 |
| HTTPPORT N | SET ETHERNET PORT NUMBER | N=0~65535 |
| RSTIP | IP CONFIGURATION RESET TO <DHCP> | NONE |
| A N | SET OUTPUT A SOURCE | N=1-6 |
| B N | SET OUTPUT B SOURCE | N=1-6 |
| I N | SET ALL OUTPUTS SOURCE | N=1-6 |
| EDIDMODE N | SHOW EDID MODE | N=(0)All (1)Appoint |
| EDIDALL | SHOW EDID MODE SOURCE FOR ALL | NONE |
| EDIDALL N | SET EDID CONTENT FOR ALL | N=0-7 |
| EDIDIN | SHOW ALL INPUT EDID SOURCE | NONE |
| EDIDIN N1 | SHOW INPUT N1 EDID SOURCE | N1=1-6 |

| Command Name | Description | Description of parameter |
|---------------------|----------------------------|-----------------------------|
| EDIDIN N1 N2 | SET INPUT N1 EDID SOURCE | N1=1-6 N2=0-7 |
| HDCPIN | SHOW ALL INPUT HDCP STATUS | NONE |
| HDCPIN N1 | SHOW INPUT N1 HDCP STATUS | N1=1-6 |
| HDCPIN N1 N2 | SET INPUT N1 HDCP ON/OFF | N1=1-6 N2=(0)OFF (ON) |
| PRESET | SHOW ALL PRESET CONFIG | NONE |
| PRESET N1 | SHOW PRESET N1 CONFIG | N1=1-6 |
| PRESET N1 N2 | SET PRESET N1 CONFIGURE | N1=1-6 N2=AXBX (X=1-6,M) |
| PVMODE | SHOW PREVIEW MODE | NONE |
| PVMODE N1 | SET PREVIEW MODE | N1=0-1 |
| PVPOS | SHOW PREVIEW POSITION | NONE |
| PVPOS N1 | SET PREVIEW POSITION | N1=0-3 |
| OSDTRANS | SHOW OSD Transparency | NONE |
| OSDTRANS N1 | SET OSD Transparency | N1=0-15 |
| OSDТО | SHOW OSD TIME OUT | NONE |
| OSDТО N1 | SET OST TIME OUT | N1=0-17 |
| SOURCEDET | SHOW ALL INPUT SIGNAL | NONE |
| SOURCEDET N1 | SHOW INPUT N1 SIGNAL | N1=1-6 |

| Command Name | Description | Description of parameter |
|----------------------|-----------------------------|--------------------------|
| SINKINFO | SHOW ALL OUTPUT INFORMATION | NONE |
| SINKINFO N1 | SHOW OUTPUT N1 INFORMATION | N1=A-B |
| INNAME | SHOW ALL INPUT NAME | NONE |
| INNAME N1 | SHOW INPUT N1 NAME | N1=1-6 |
| INNAME N1 N2 | SET INPUT N1 NAME | N1=1-6 N2=ABCDEFGH |
| OUTNAME | SHOW ALL OUTPUT NAME | NONE |
| OUTNAME N1 | SHOW OUTPUT N1 NAME | N1=A-B |
| OUTNAME N1 N2 | SET OUTPUT N1 NAME | N1=A-B N2=ABCDEFGH |
| MATRIXMODE | SHOW MATRIX CURRENT MODE | NONE |
| MATRIXMODE N1 | SET MATRIX MODE | N1=0-1 |
| VER | SHOW DESCRIPT OF UNIT | NONE |
| REBOOT | SYSTEM REBOOT | NONE |
| HELP | SHOW COMMAND LIST | NONE |
| HELP N | SHOW DESCRIPT OF COMMAND | N : command name |

Note: All RS-232 commands will not execute unless followed by a carriage return. All commands are case-sensitive.

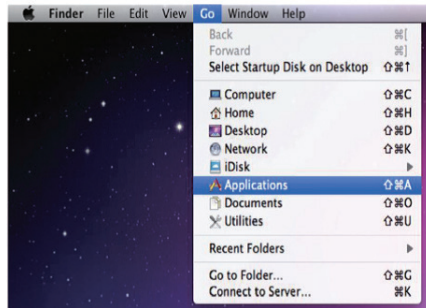
6.7 Telnet Control

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.

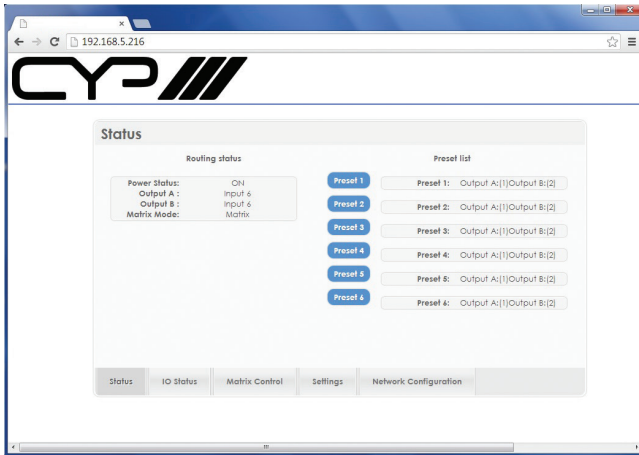


Once in the command line interface (CLI) type "telnet", then the "IP address" of the unit and hit enter. Only when the Telnet port (device port) is not set to 23, the number "(device port)" then needs to be entered after

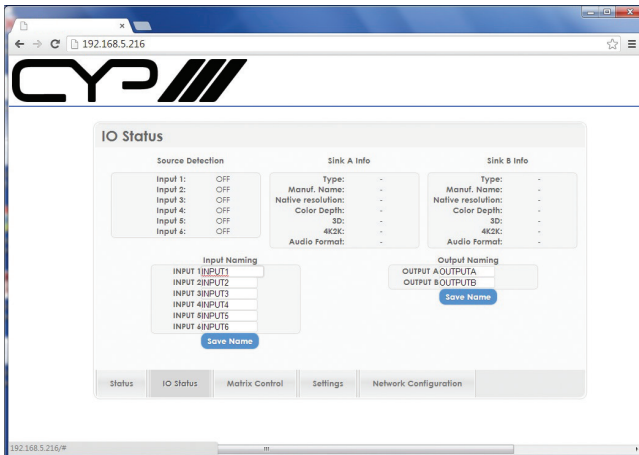
IP address (device IP) and before hit enter.

6.8 Web GUI Control

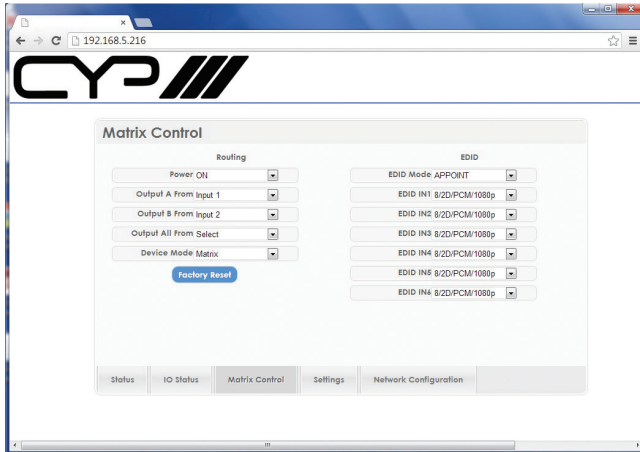
On a PC/Laptop that is connected to an active network system, open a web browser and type device's IP address (available from LCM monitor or OSD menu) on the web address entry bar. The browser will display the device's Status, IO Status, Matrix Control, Settings and Network Configuration control pages for users to control.



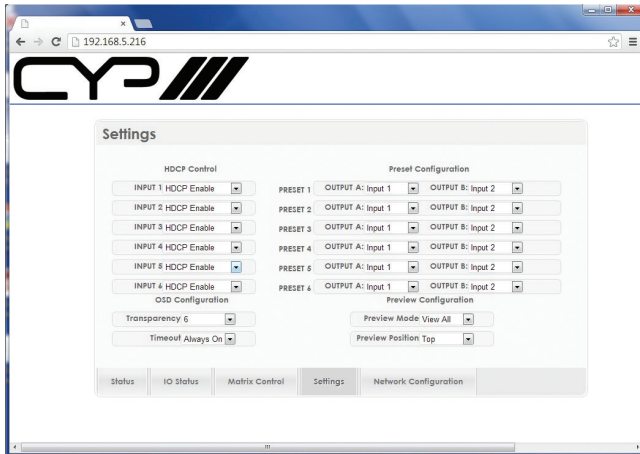
Click on IO Status for input and output selection.



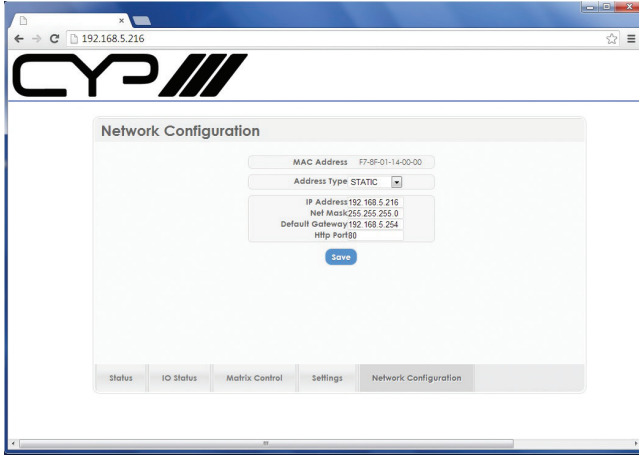
Click on Matrix Control for outputs and EIDID selections.



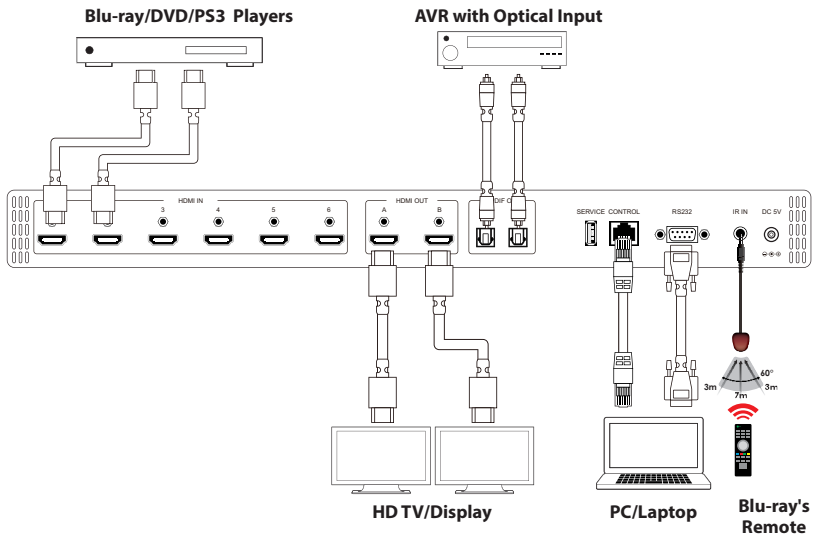
Click on Settings to set each input's HDCP Control and Preset Configuration.



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



7. CONNECTION DIAGRAM



8. SPECIFICATIONS

| | |
|------------------------------|--|
| Frequency Bandwidth | 300Mbps to 3Gbps |
| Input Ports | 6 x HDMI 1 x USB (Service only) 1 x Control 1 x RS-232 1 x IR |
| Output ports | 2 x HDMI 2 x Optical (S/PDIF) |
| Resolution | 480i~1080p@50/60, 1080p@24, 4K x 2K (3840x2160/4096x2160@30Hz) |
| Output Level | VGA~WUXGA |
| IR Frequency | 30~50kHz |
| Power Supply | 5VDC/2.6A (US/EU standards, CE/FCC/UL certified) |
| ESD Protection | Human body model: ±8kV (air-gap discharge) ±4kV (contact discharge) |
| Dimensions | 438mm (W) x 269mm (D) x 44mm (H) /Jacks Excluded 482mm (W) x 278mm (D) x 53mm (H) /Jacks & Rack Ears Included |
| Weight | 3042 g |
| Chassis Material | Metal |
| Colour | 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) | 4.7 |

| DVI and HDMI Supported Resolutions | Input | Output |
|------------------------------------|-------|--------|
| 640x480@60 | ✓ | ✓ |
| 640x480@72 | ✓ | ✓ |
| 640x480@75 | ✓ | ✓ |
| 720x480@60 | ✓ | ✓ |
| 720x576p@50 | ✓ | ✓ |
| 800x600@60 | ✓ | ✓ |
| 800x600@72 | ✓ | ✓ |
| 800x600@75 | ✓ | ✓ |
| 1024x768@60 | ✓ | ✓ |
| 1024x768@70 | ✓ | ✓ |
| 1024x768@75 | ✓ | ✓ |
| 1280x720@50 | ✓ | ✓ |
| 1280x720@60 | ✓ | ✓ |
| 1280x720p@60 | ✓ | ✓ |
| 1280x768@60 | ✓ | ✓ |
| 1280x800@60 | ✓ | ✓ |
| 1280x1024@60 | ✓ | ✓ |
| 1360x768@60 | ✓ | ✓ |
| 1600x1200@60 | ✓ | ✓ |
| 1920x1080i@50 | ✓ | ✓ |
| 1920x1080i@60 | ✓ | ✓ |
| 1920x1080p@24 | ✓ | ✓ |
| 1920x1080p@25 | ✓ | ✓ |
| 1920x1080p@30 | ✓ | ✓ |
| 1920x1080p@50 | ✓ | ✓ |
| 1920x1080p@60 | ✓ | ✓ |
| 1920x1200@60(RB) | ✓ | ✓ |
| 3840x2160@30 | ✓ | ✓ |
| 4096x2160@24 | ✓ | ✓ |

Audio Sampling Rate Up to 192 kHz

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

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

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

9. ACRONYMS

| ACRONYM | COMPLETE TERM |
|--------------|---|
| CAT5e | Category 5 Cable |
| CAT6 | Category 6 Cable |
| CAT7 | Category 7 Cable |
| CEC | Consumer Electronic Control |
| DVI | Digital Visual Interface |
| HDCP | High-bandwidth Digital Content Protection |
| HDMI | High Definition Multimedia Interface |
| PoE | Power over Ethernet |
| 4Kx2K | 3840x2160/ 4096x2160 |



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