



PU-442PL-KIT

4 x 4 HDBaseT™ Lite Matrix with PoE, plus 2 Additional Independent HDMI Zone Outputs (total 4 x 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	SUMMARY OF CHANGE
v1.00	16/12/2013	First release
v1.01	17/12/2013	Corrected description/features
v1.02	13/01/2014	Added new image/description

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1. INTRODUCTION

This 4 by 6 HDBaseT™ Lite Matrix utilises four HDMI inputs and four HDBaseT outputs over a single CAT5e/6/7 cable (up to 60m) for each output, plus two additional HDMI outputs. All six outputs are independent allowing any source to be distributed to any output. The HDBaseT outputs feature Power over Ethernet (PoE) functionality and allow the user to power the supplied PU-515PL-RX receivers without the need for a separate mains power supply.

The PU-442PL-KIT supports the transmission of video (resolutions up to 1080p Full HD and 1920x1200@60Hz), PoE, 2-way IR, multi-channel digital audio, and control via IR, RS-232, or Web GUI/Telnet IP. Use the IP control feature to enable users to access and control the matrix remotely and also allow additional options for integration of third-party control systems.

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

3. PACKAGE CONTENTS

- /// 4 by 6 HDMI HDBaseT Lite Matrix
- /// 4xPU-515PL-RX receivers
- /// 5xIR Receiver
- /// 5xIR Emitter
- /// 1x24V/3.75A DC Power Supply
- /// 1xRemote Control
- /// 1xOperation Manual

4. SYSTEM REQUIREMENTS

- /// Input source equipment with HDMI connection cables
- /// Certified CAT5e/6/7 cables
- /// Output displays or audio receiver equipment with HDMI connection cables

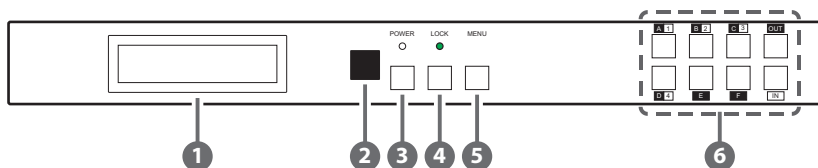
5. FEATURES

- /// Supports all v1.3 HDMI resolutions
- /// Supports uncompressed video/audio up to 10.2Gbps
- /// Common supported resolutions: HDTV: 480p, 576p, 720p, 1080i, 1080p, 1080p24; PC: VGA, SVGA, XGA, WXGA, SXGA, UXGA, WUXGA.
- /// HDMI, HDCP and DVI complaint
- /// High Definition Audio supported: Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio plus LPCM (up to 192kHz)
- /// Uncompressed data transfer over single CAT cable (60m - CAT5e/6/7)
- /// Supports HDMI input up to 15m 1080p 8bit or 10m 1080p 12bit.
- /// Supports RS-232, 2-Way IR, Manual Selection Buttons, and HDMI CEC control pass through
- /// Selectable EDID settings - TV (downstream) and STD (fixed)
- /// Compact 1U Rack mount design
- /// Supports 3D signals
- /// Supports additional IR Control via a master (ALL) Input/Output
- /// Supports full IP control
- /// Supplied with 4x PU-515PL-RX receivers

6. OPERATION CONTROLS AND FUNCTIONS

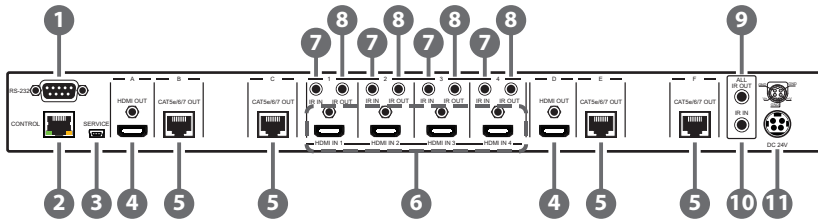
The following sections describe the hardware components of the unit.

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 green LED will illuminate when the power is ON. When the LED illuminate in red it is in standby mode.
- ④ **LOCK:** 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→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



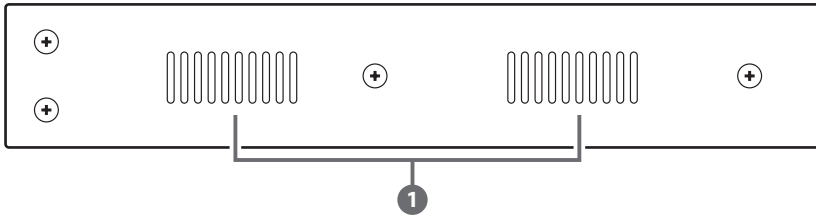
- 1 RS-232:** This slot is to connect with D-Sub 9pin cable from the PC/ Laptop device for RS232 control.

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. 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 and active network system with RJ45 terminated cable (for details, please refers to section RS-232 & Telnet commands and Web GUI Control).

Warning: Please do not connect this port directly to the PC/Laptop as the Telnet function will not work.
- 3 Service:** This slot is to connect with mini USB B type cable for firmware update only.
- 4 HDMI OUT A/E:** These slots are to connect with HD TV/display for instant display.
- 5 CAT5e/6/7 OUT B/C/D/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 Receiver included in the package for IR signal receiving.
- 8 IR OUT 1~4:** These slots are to connect with IR Emitter included in the package for IR signal sending.
- 9 ALL IR OUT:** This slot is to connect with the IR Emitter for IR signal received from receiver sides and send to the source side.

- 10 **ALL IR IN:** This slot is to connect with the IR receiver for IR signal receiving and send out to receiver sides.
- 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.

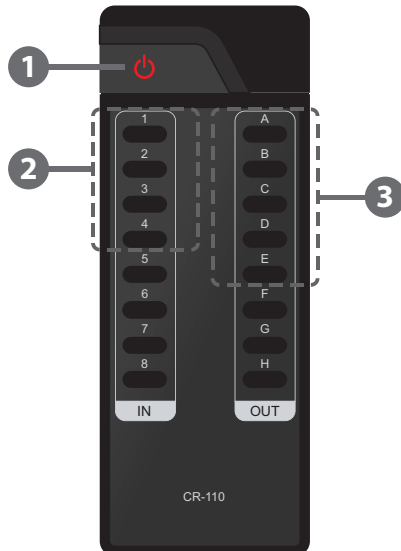
6.3 Side Panel



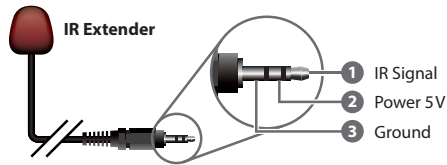
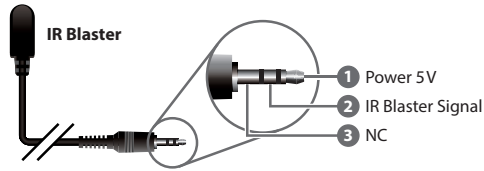
- 1 **Ventilator:** These are fan ventilation areas, DO NOT block or cover with any object.

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

PU-442PL	
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
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
EM	Setting EDID MODE. 1-STD 2-TV
?	Display all the available commands

Command	Description
<u>UARTBAUD?</u>	Display baud rate setting 1~6 1: 9600bps 2: 14400bps 3: 19200bps 4: 38400bps 5: 57600bps 6: 115200bps
<u>UARTBAUD2</u>	Set output B's baud rate from 1~6
<u>UARTBAUD3</u>	Set output C's baud rate from 1~6
<u>UARTBAUD5</u>	Set output E's baud rate from 1~6
<u>UARTBAUD6</u>	Set output F's baud rate from 1~6
<u>UARTSW?</u>	Display output's UART status Allowing Matrix to send commands to Receiver's connected device.
<u>UARTSW0</u>	Switch to MCU. Allowing Receivers to send commands to Matrix.
<u>UARTSW2</u>	Switch to output B and allow Matrix to send commands to Receiver's connected device.
<u>UARTSW3</u>	Switch to output C and allow Matrix to send commands to Receiver's connected device.
<u>UARTSW5</u>	Switch to output E and allow Matrix to send commands to Receiver's connected device.
<u>UARTSW6</u>	Switch to output F and allow Matrix to send commands to Receiver's connected device.
Quit	Exit (for telnet only)

Note: All the command will be not executed unless followed with a carriage return. All letters are case-insensitive. Commands are under RS-232 control only

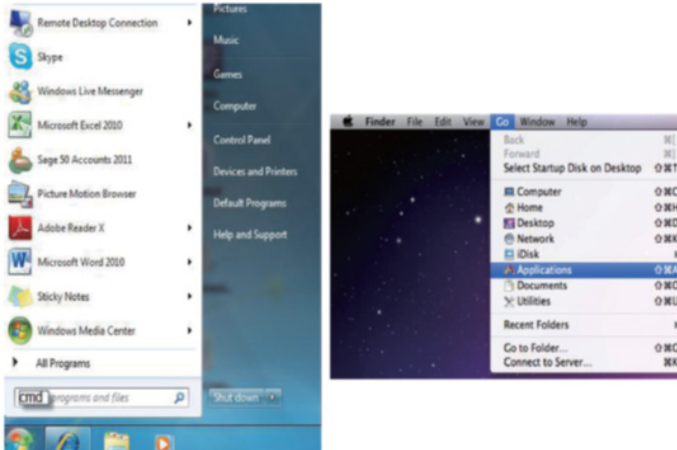
6.8 Telnet Control

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

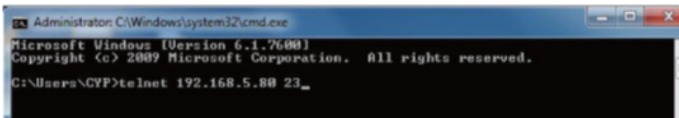
Under Windows XP go to the 'Start' menu and click on "Run", type "cmd" with then press enter.

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.

```

Telnet 192.168.5.56

telnet-> help

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 at the same time
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 config
PO : Power OFF
PI : Power On
I1~I4 : Switch all the output to 1~4
IO : Mute all the output
ST : Display the current matrix state and firmware version
RS : System Reset to A1,B2,C3,D4,E5,F6
EM : Setting EDID MODE. 1-STD 2-TU.
? : Display all available commands
QUIT : Exit

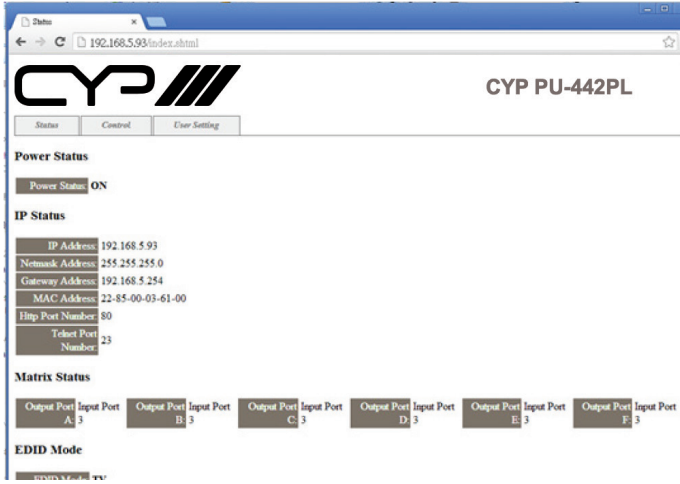
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Type "IPCONFIG" To show all IP configurations. To reset the IP, type "RSTIP" and to use a set static IP, type "SETIP" (For a full list of commands, see Section 6.7).

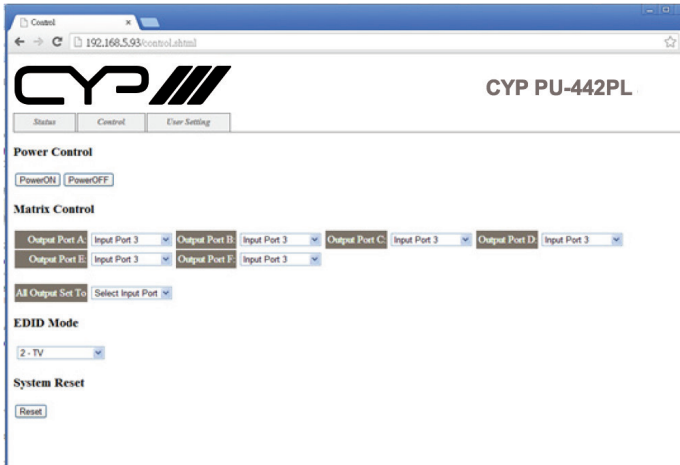
Note: All the commands will be not executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.

6.9 Web GUI Control

On a PC/Laptop that is connected to the same active network as the Matrix, open a web browser 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.

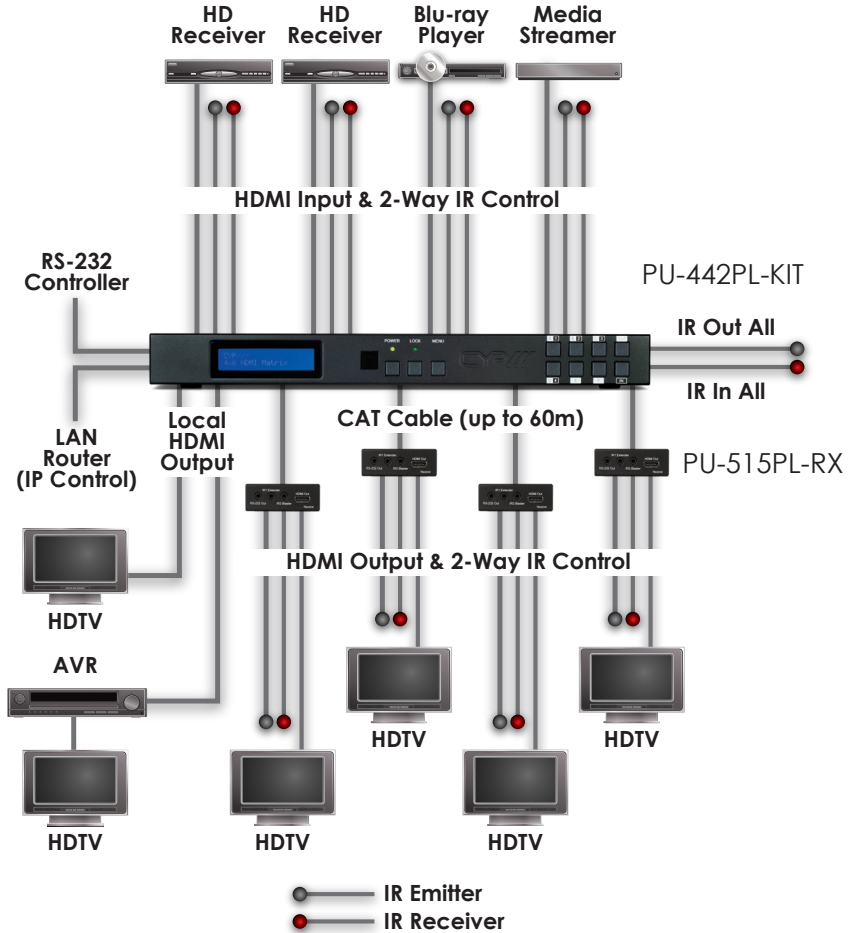


Clicking on the 'User Setting' tab allows you to reset the IP configuration. The system will ask for a reboot of the device every time any of the settings are changed. The IP address needed to access the Web GUI control will also need to be changed accordingly on the web address entry bar.

The screenshot shows a web browser window titled 'User Setting' with the address bar displaying '192.168.5.93/user.shtml'. The page features the CYP logo and the device model 'CYP PU-442PL'. Below the logo are three tabs: 'Status', 'Control', and 'User Setting'. The 'User Setting' tab is active, displaying the 'IP Address Selection' section. This section includes a dropdown menu for 'Address Type' set to 'DHCP/AutoIP', and input fields for 'Static IP Address' (192.168.5), 'Subnet Mask' (255.255.255), and 'Default Gateway' (192.168.5). An 'Update Settings' button is located at the bottom of the form.

IP Address Selection	
Address Type	DHCP/AutoIP
Static IP Address	192 . 168 . 5
Subnet Mask	255 . 255 . 255
Default Gateway	192 . 168 . 5
<input type="button" value="Update Settings"/>	

7. CONNECTION DIAGRAM



8. SPECIFICATIONS

Video Bandwidth	225 MHz/6.75 Gbps
Input Ports	4×HDMI, 5×IR Receiver, 1×RS-232, 1×LAN (Control only), 1×RJ45 (Control Only), 1×USB Mini-B (Service Only)
Output Ports	2×HDMI, 4×CAT5e/6/7, 5×IR Emitter
Power Supply	24V / 3.75 A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Dimensions	436 mm(W)×249 mm(D)×44 mm(H) 436 mm(W)×255 mm(D)×48 mm(H)/Including Connectors
Weight	3334g
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	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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v1.02