



OR-HD88HC

8 x 8 HDMI Matrix Switcher with simultaneous HDMI & CAT Outputs (inc. IR)

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
RDV1	26/03/12	Preliminary Release
RDV2	04/07/12	Controls Function
v1.01	24/07/12	Telnet and Web GUI sections updated
v1.02	06/10/14	Amended Product description
v1.03	23/03/15	Added IP(Telnet) to Introduction/Features
v1.04	20/08/15	Added resolution to Features

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1. INTRODUCTION

The OR-HD88HC Matrix Switcher connects eight HDMI sources to 16 displays. This matrix features 8 HDMI outputs and each HDMI output is mirrored to provide a Twin CAT output which runs simultaneously. Connect a PU-1106RX Receiver to each of the Twin CAT outputs to extend the HDMI signal up to 45m for multi-room connectivity. This device supports 'Deep Colour', High Definition Audio, and 3D signal compatibility.

This matrix switcher can be controlled via the supplied IR Remote Control, RS-232, IP(Telnet) and web GUI, or by using the selection buttons on the front of the unit.

The unit also allows additional options for integration of third-party control systems. CYP provide control drivers for control systems such as Control 4, RTI, Crestron, AMX, Control FX, and RTI. These are available at no extra cost.

2. APPLICATIONS

-  Multi-zoned HD installations
-  HD and AVR Sub-zone installation
-  Video and TV wall display and control
-  Security surveillance and control
-  Commercial advertising, display and control
-  University Lecture hall display and control
-  Retail demonstration and sales

3. PACKAGE CONTENTS

-  8x8 HDMI over Dual CAT6 Matrix
-  1xIR Receivers
-  8xIR Emitters
-  1x24 V/6.25 A DC Power Adaptor
-  1xIR Remote Control
-  Operation Manual

4. SYSTEM REQUIREMENTS

- /// HDMI equipped source devices, connect with HDMI cables or DVI equipped source, connect with DVI to HDMI cables
- /// HDMI equipped displays (TVs or monitors) or HDMI equipped AV receivers, connect with HDMI cables
- /// HDMI over dual CAT6 Receiver(s) with industry CAT6 cable

5. FEATURES

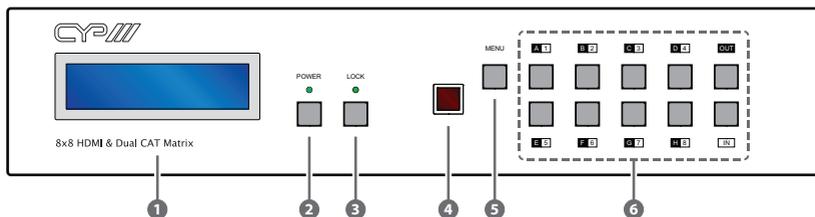
- /// HDMI, HDCP 1.1, DVI 1.0 compliant
- /// Resolutions supported: PC - VGA to WUXGA ; HDTV - 480i to 1080p@50/60 plus 1080p@24fps
- /// High Definition audio supported: Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio and LPCM
- /// The HDMI input is compensated, clock / phase adjusted, and jitter eliminated so the output is a brand new standard HDMI signal running up to 15m at 1080p
- /// IP-Telnet, Web GUI, RS-232, CEC Command functionality, IR Remote Control, and IR extender supported
- /// Selectable EDID settings - TV (downstream) and STD (fixed)
- /// Supports Deep Colour (10 & 12 bit)
- /// Supports 3D signals
- /// Key lock function

Note:

1. Tested with CAT-6/23AWG cable, results may vary with cables of a different specification.
2. Cable distance tested with a Sony PS3 40G, 37" Philips 8-bit LCD TV and 37" Samsung 12-bit LCD TV.
3. Figures provided in this manual are for reference only, actual figures may vary depending on the source equipment and display being used along with the type of cables and their specifications.
4. Do not connect the LAN/CONTROL port to CAT outputs of this device.

6. OPERATION CONTROLS AND FUNCTIONS

6.1 Front Panel



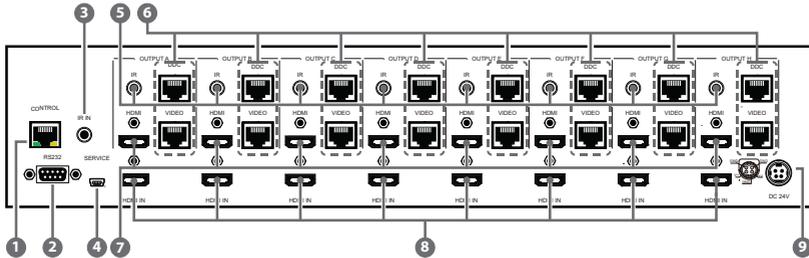
- 1 **LCM:** Displays the setting information of each input and output setting.
- 2 **POWER:** Press this button to power the device on/off. The LED will illuminate green when the power is on, red when it is in 'Standby' mode.
- 3 **LOCK:** Press this button to lock all the buttons on the panel, press again to unlock.
- 4 **IR:** IR Receiver window (accepts the remote control signal of this device only).
- 5 **MENU:** Press this button to access the LCM menu system, from here EDID settings can be managed and IP system settings are displayed.
- 6 **1~8/A~H and OUT/IN:** Press the OUT or IN button to select the output or input mode and then press the required number button to make the selection accordingly.

For example, if outputs A~D need to be set to input 1 and outputs E~H need to be set to input 2, then the following sequence of button presses need to be performed:

Press: OUT→A→B→C→D→IN→1→MENU,
and then press: OUT→E→F→G→H→IN→2→MENU.

Note: If the menu button is not pressed the selection will not be changed.

6.2 Rear Panel

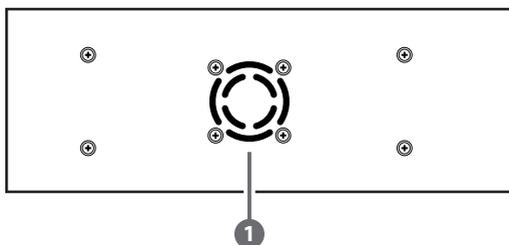


- 1 **CONTROL:** This port is the link for Telnet control, connect to an active Ethernet link with an RJ45 terminated cable (for further details, please refer to sections 6.8 and 6.9).

Warning: Please do not connect this port directly to the PC/Laptop as the Telnet function will not work.

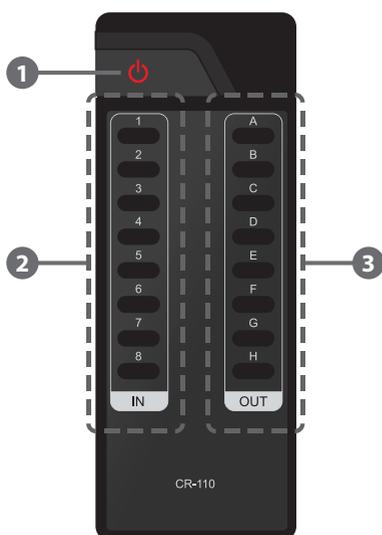
- 2 **RS-232:** Connect to a PC or control system with D-Sub 9-pin cable for the transmission of RS-232 commands.
- 3 **IR IN:** Connect to the IR receivers for IR signal reception from the remote control of the Matrix. Ensure that the remote is within the direct line-of-sight of the IR receiver when used.
- 4 **SERVICE:** Manufacturer use only.
- 5 **IR OUT A~H:** Connect to the IR emitters for IR signal transmission. Place the IR emitter in direct line-of-sight of the equipment to be controlled.
- 6 **DDC/VIDEO OUTPUT A~H:** Connect from these CAT outputs to the CAT input port of the receiver units with a single CAT5e/6/7 cable for HDMI Audio/Video and IR control signal transmission.
- 7 **HDMI OUT A~H:** Connect to HDMI equipped TVs or monitors for display of the HDMI input source signal.
- 8 **HDMI IN 1~8:** Connect to the HDMI input source devices such as a DVD player or a Set-top Box with HDMI cable or DVI to HDMI cable.
- 9 **DC 24V:** Plug the 24 V DC power supply into the unit and connect the adaptor to an AC outlet.

6.3 Side Panel



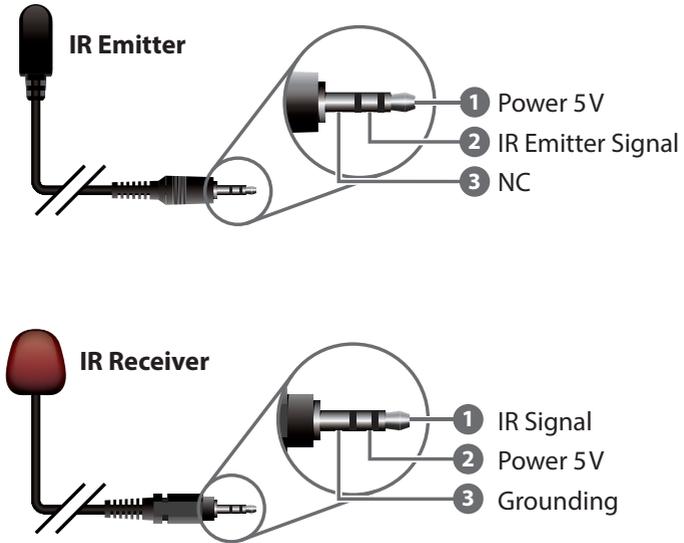
- 1 Fan Ventilator:** These are air ventilation areas, DO NOT block these areas or cover it with any object. Please allow adequate space around the unit for air circulation.

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 1~8.
- 3 OUT:** Output ports selection A~H.

6.5 IR Cable Pin Assignment



6.6 RS-232 Pin Assignment

OR-HD88HC			Remote Control Console	
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: 19200 bps

Data Bit: 8-bit

Parity: None

Stop Bit: 1-bit

Flow Control: None

6.7 RS-232 and Telnet Commands

Command	Description
A1~A8	Switch Output A to 1~8
B1~B8	Switch Output B to 1~8
C1~C8	Switch Output C to 1~8
D1~D8	Switch Output D to 1~8
E1~E8	Switch Output E to 1~8
F1~F8	Switch Output F to 1~8
G1~G8	Switch Output G to 1~8
H1~H8	Switch Output H to 1~8
ABCE...1~ABCD...8	Switch Output ABCD... to 1~8 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
P0	Power Off
P1	Power On
I1~I8	Switch all the output to 1~8
ST	Display the current matrix state and firmware version
RS	System Reset to H8
EM	Setting EDID MODE. 1-STD 2-TV.
?	Display all available commands
QUIT	Exit (Telnet only)

Note: Any commands will not be executed unless followed by a carriage return. Commands are not case-sensitive.

6.8 Telnet Control

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

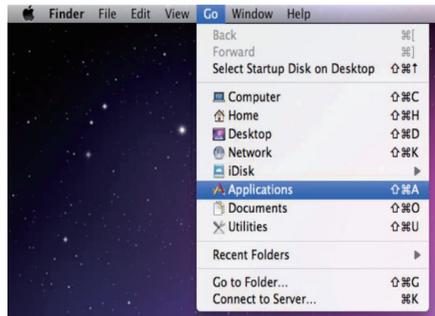
Note: Please do not connect both the Matrix and the PC/Laptop with a single CAT5e/6 cable as it will not access the telnet function.

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", a space, then the IP address of the unit you wish to control, a space 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.

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\CYP>telnet 192.168.5.80 23_
```

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

```
Telnet 192.168.5.140
telnet-> help
A1~A8 : Switch Output A to 1~8
B1~B8 : Switch Output B to 1~8
C1~C8 : Switch Output C to 1~8
D1~D8 : Switch Output D to 1~8
E1~E8 : Switch Output E to 1~8
F1~F8 : Switch Output F to 1~8
G1~G8 : Switch Output G to 1~8
H1~H8 : Switch Output H to 1~8
ABCD..1~ABCD...8 : Switch output ABCD... to 1~8 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
P0 : Power Off
P1 : Power On
I1~I8 : Switch all the output to 1~8
ST : Display the current matrix state and firmware version
RS : System Reset to H8
EM : Setting EDID MODE. 1-STD 2-TV.
? : Display all available commands
QUIT : Exit

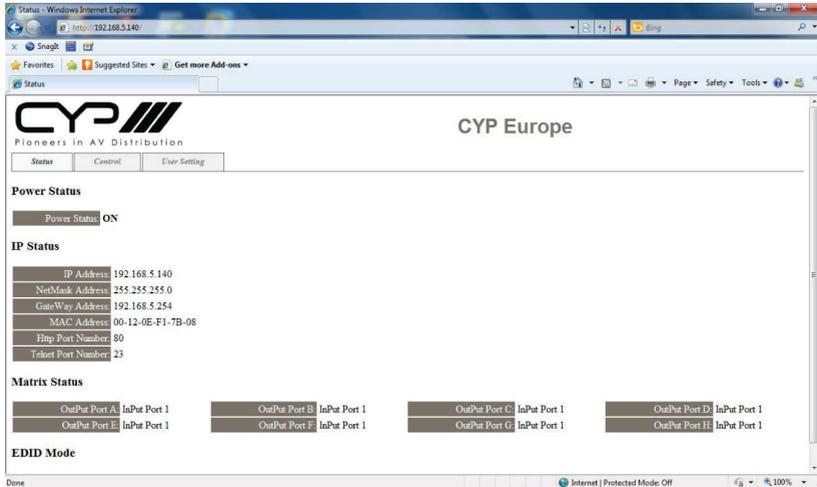
telnet-> _
```

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).

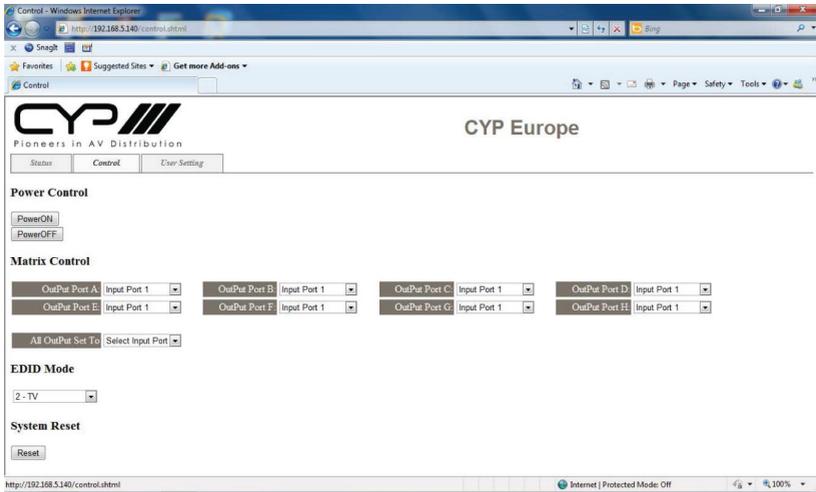
Note: Any commands will not be executed unless followed by a carriage return. Commands are not case-sensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.

6.9 Web GUI Control

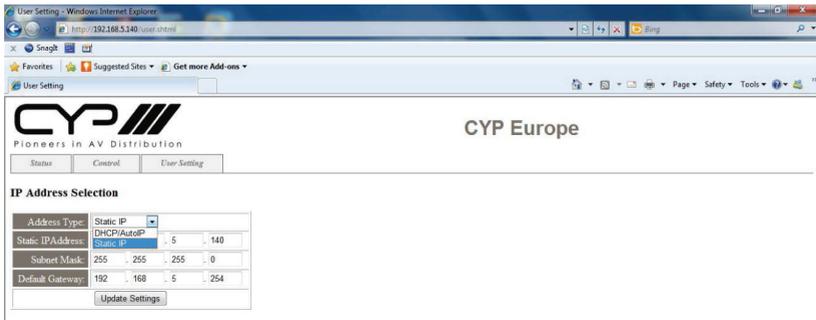
On a PC/Laptop that is connected to an active network, open a web browser and type the Matrix's IP address on the web address entry bar. The browser will display the device's status, control and User setting pages.



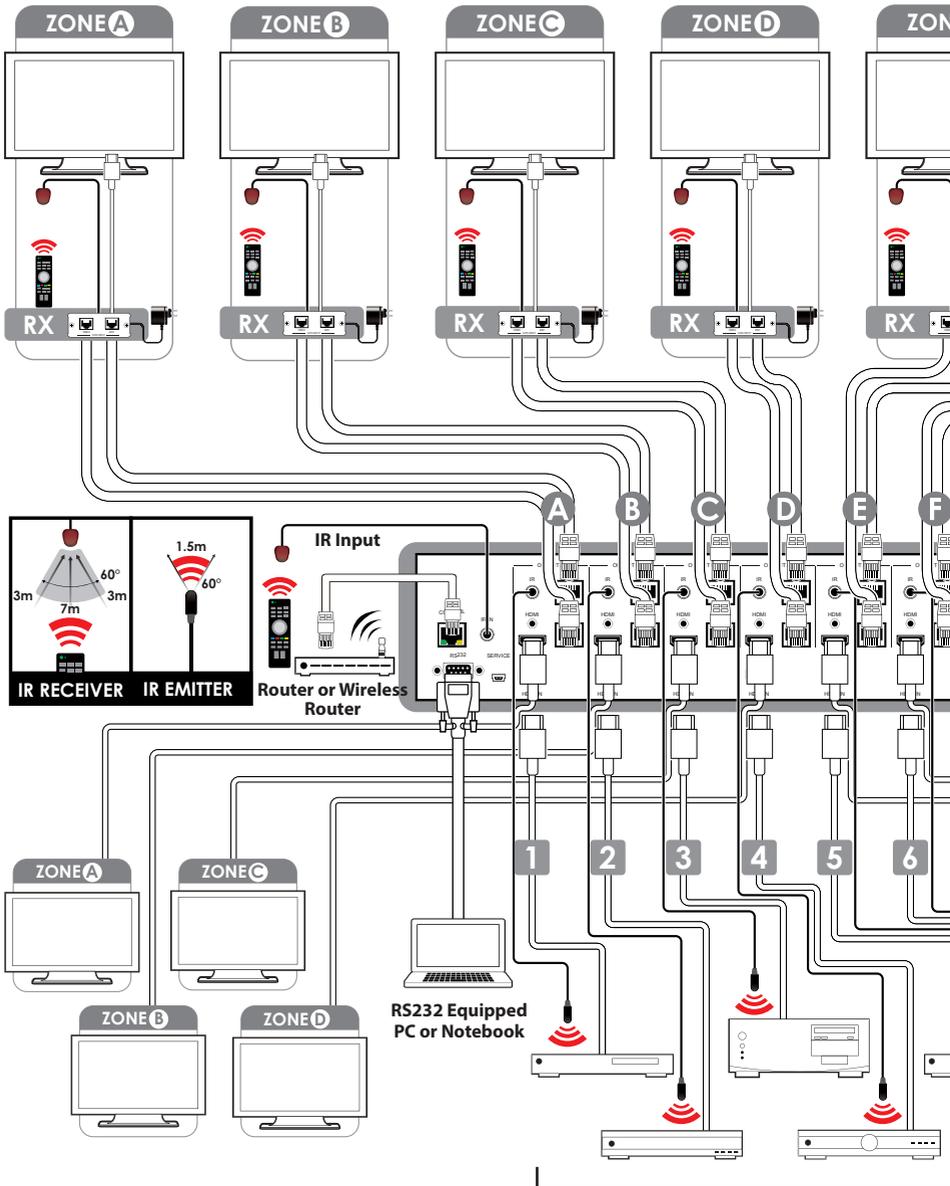
Click on the 'Control' tab to control power, input/output ports, EDID and reset mode.

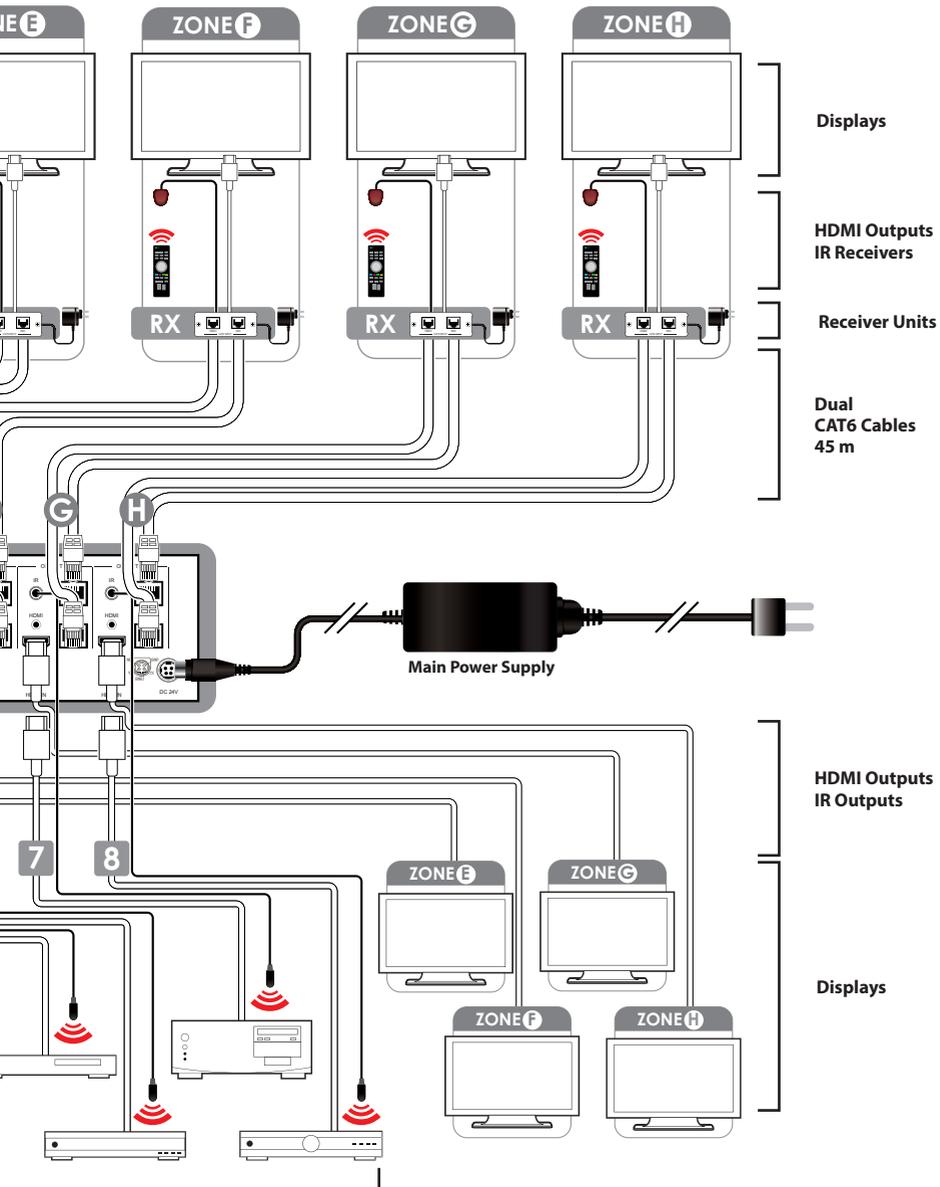


Click on the 'User Setting' tab allows you to reset the IP configuration. The system will ask for a reboot of the device every time any of the settings are changed. The IP address needed to access the Web GUI control will also need to be changed accordingly on the web address entry bar.



7. CONNECTION DIAGRAM





Equipment

8. SPECIFICATIONS

Video Bandwidth	255 MHz/6.75 Gbps
Input Ports	8×HDMI, 1×IR Receiver, 1×RS-232, 1×Mini USB Type B (for firmware update only)
Output Ports	8×Dual CAT6, 8×IR Emitter, 8×HDMI
HDMI Input Cable Distance	15m/8-bit, 10m/12-bit
HDMI Output Cable Distance	15m/8-bit, 15m/12-bit
CAT6 Cable Distance	45m/8-bit
ESD Protection	Human-body Model: ± 8kV (Air-gap discharge) ± 4kV (Contact discharge)
Power Supply	24 V/6.25 A DC (US/EU standards, CE/FCC/UL certified)
Dimensions	438 mm (W)×255 mm (D)×93 mm (H)
Weight	4,458 g
Chassis Material	Metal
Silkscreen 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 (non-condensing)
Power Consumption	55 W

9. ACRONYMS

ACRONYM	COMPLETE TERM
DTS	Digital Theater Systems
DVI	Digital Visual Interface
EDID	Extended Display Identification Data
HDCP	High-bandwidth Digital Content Protection
HDMI	High-Definition Multimedia Interface
HDTV	High-Definition Television
LCM	Liquid Crystal Monitor
USB	Universal Serial Bus
UXGA	Ultra Extended Graphics Array
VGA	Video Graphics Array



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