HDMI 8x8 UHD 4k2k Matrix with HDCP 2.2 - # 15402

Operation Manual

Introduction

The 8 by 8 HDMI 4K2K Matrix supports the transmission of video (resolutions up to 4K2K Full HD & HDCP 2.2), multi-channel digital audio and control via IR, RS-232, Telnet or WebGUI from eight high definition sources to eight outputs.
It supports high resolution digital audio formats such as LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus, Dolby Atmos and DTS-HD Master Audio as well as 3D content that can be displayed when connecting a 3D TV and 3D source.

Applications

- HDMI Matrix System
- Video/TV wall display and control
- Security surveillance and control
- Commercial advertising, display and control
- University lecture hall, display and control
- Retail sales and demonstration

Features

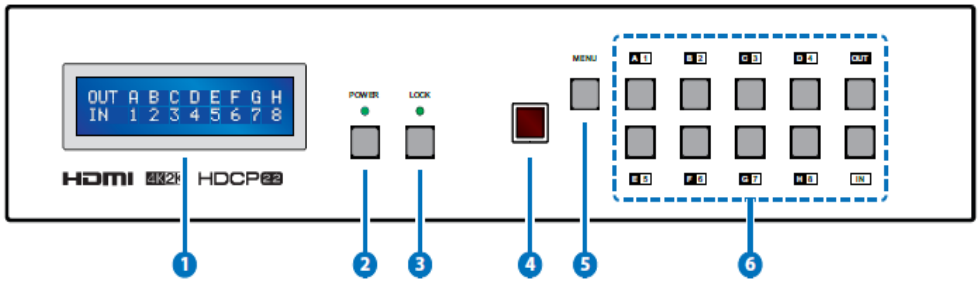
- HDMI with 4K2K supported, HDCP 2.2 and DVI compliant
- Supports PC resolution up to WUXGA and HDTV resolution up to 4K2K(3840x2160@24/25/30 & 3840x2160@50/60_YUV420, 4096x2160 @24/25/30 & 4096x2160 @50/60Hz _YUV420)
- Supports 3D signal bypass
- Supports pass-through audio LPCM 2/5.1/7.1CH, Dolby Digital 2~5.1CH, DTS 2~5.1CH, Dolby TrueHD and DTS-HD Master Audio
- Supports IR Extension
- Supports RS-232, remote control, on-panel control and IP control (Telnet & WebGUI)
- 2U size design
- Compliant with DVI source

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

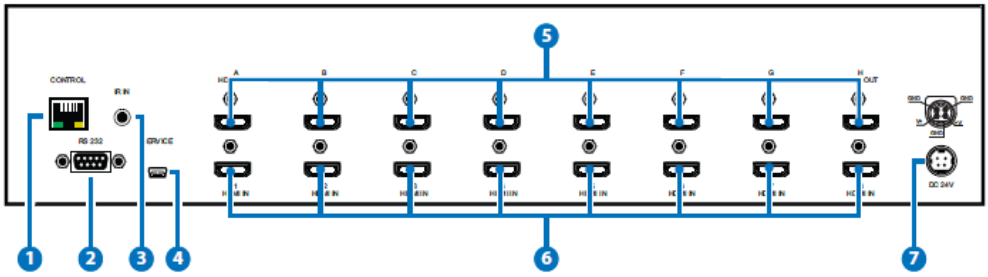
Operation Controls and Functions

Front Panel



1. LCM: Displays the setting information of each input and output setting.
2. POWER: Press this button to power the device on/standby. 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. The LED will illuminate green when locked.
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 button and then the number buttons to select the required output ports, and press IN button and then a single number button to select the required input source, finally press the MENU button to confirm the selection.
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.*

Rear Panel



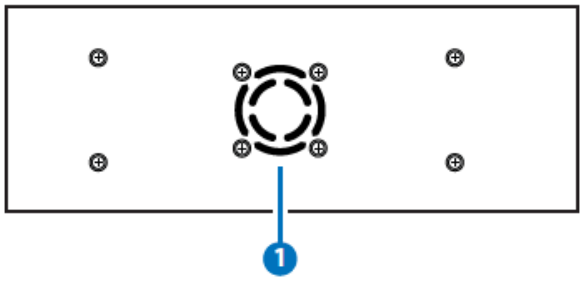
1. CONTROL: This port is the link for Telnet and WebGUI controls, connect to an active Ethernet link with an RJ45 terminated cable (for further details, please refer to sections on Telnet Control and WebGUI Control).

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 supplied IR extenders 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 extender when used.
4. SERVICE: Manufacturer use only.

5. HDMI OUT A~H: Connect to HDMI equipped TVs or monitors for display of the HDMI input source signal.
6. 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..
7. DC 24V: Plug the 24 V DC power supply into the unit and connect the adaptor to an AC outlet.

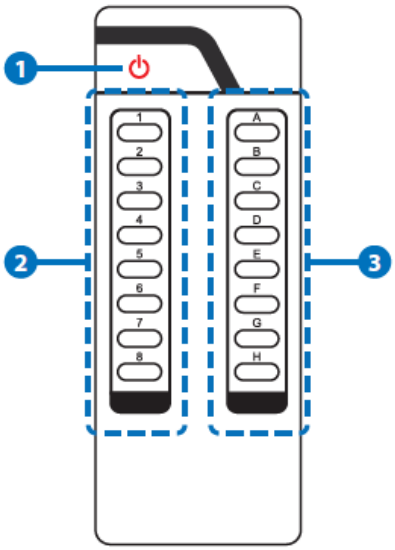
Side Panel



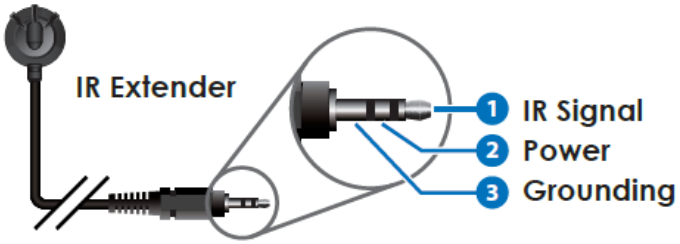
1. Fan Ventilator: These are air ventilation areas, DO NOT block these areas or cover it with any object. Please allow adequate space around the unit for air circulation.

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.



IR Cable Pin Assignment



RS-232 Protocol

Matrix	
Pin	Assignment
1	NC
2	Tx
3	Rx
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

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

Baud Rate: 115200bps
Data bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

RS-232 & Telnet Commands

Command	Description	Parameter
AN	Switch output A to input N.	N=1~8
BN	Switch output B to input N.	N=1~8
CN	Switch output C to input N.	N=1~8
DN	Switch output D to input N.	N=1~8
EN	Switch output E to input N.	N=1~8
FN	Switch output F to input N.	N=1~8
GN	Switch output G to input N.	N=1~8
HN	Switch output H to input N.	N=1~8
IN	Switch all outputs to input N	N=1~8
AB.....IN	N Switch output AB... to input N.	N=1~8
SETIP <X.X.X.X> <X.X.X.X> <X.X.X.X>	Set IP, SubNet and Gateway (Static IP)	X=0~255
IPCONFIG	IPCONFIG Display the current IP configuration	None
RSTIP	Set IP configuration to DHCP	None

P0	Power off	None
P1	Power on	None
STOREN	Store current I/O to position N	N=1~8
SHOWN	Show current port N I/O position	N=1~8
PRESETN	Preset the store I/O position N	N=1~8
NameN N1	Name port N as N1	N=1~8, N1=A~H (Max Length=8)
ST	Show unit firmware version	None
EMN	Setting EDID mode N	N=1 (Standard)/2 (TV)
RS	Routing reset to default	None
USBISP	Update firmware via USB	None
UARTSW?	Display the UART switching state	None
UARTSWN	Switch output's UART to port N	N=0 (out console), 1~8
UARTBAUD?	Display all output's UART baud	None
UARTBAUDN	N1 Setting RS-232 routing port N to Baud rate N1	N=1~8, N1=1~6 (1=9600bps, 2=14400bps, 3=19200bps, 4=38400bps, 5=57600bps, 6=115200bps)
HELP(?)	Display all available commands	None
QUIT	Quit Telnet	None

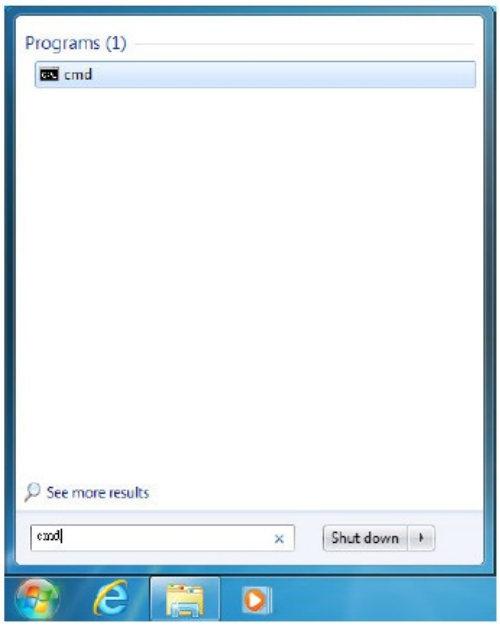
Note: *Any commands will not be executed unless followed by a carriage return. Commands are case-insensitive.*

Telnet Controls

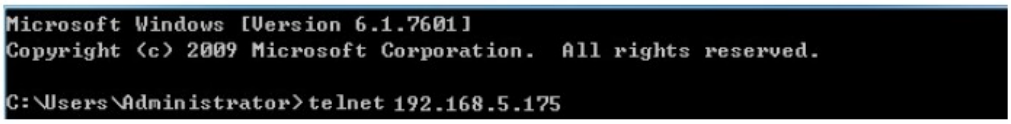
Before attempting to use the Telnet control, please ensure that both the Matrix (via the 'LAN /CONTROL' port) and the PC/Laptop are connected to the same active networks.
To access the Telnet control in Windows 7, click on the 'Start' menu and type "cmd" in the Search field then press enter.

Under 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.



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

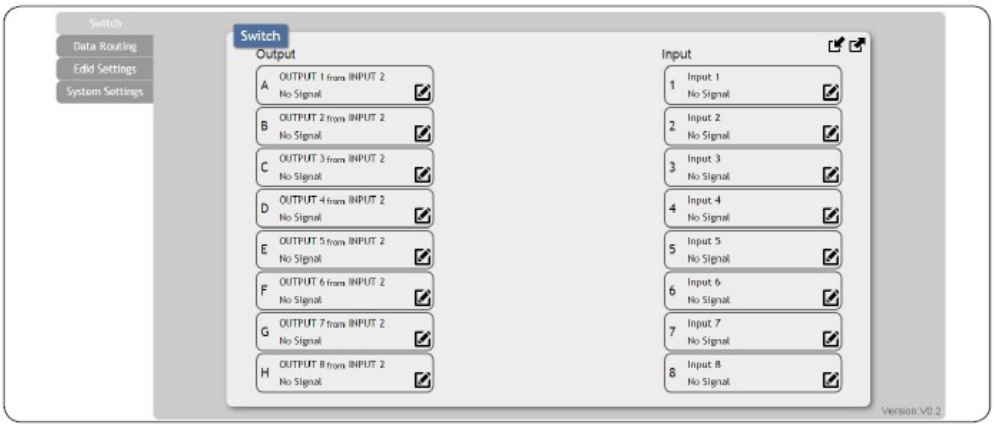
```
Welcome to TELNET.
>?

SETIP       : SET ETHERNET IP ADDRESS
IPCONFIG    : DISPLAY THE CURRENT IPCONFIG
RSTIP       : IP CONFIGURATION RESET TO <DHCP>
P0          : POWER OFF
P1          : POWER ON
STORE       : STORE current I/O position (01~08)
SHOW        : SHOW current port's I/O position (01~08)
PRESET      : PRESET the store I/O position (01~08)
NAME        : NAME N1 N2
the stored port N1(01~08) no more than 8 charactors N2(ABCDEFGH)
I1~I8       : SET ALL OUTPUTS SOURCE
ST          : SHOW UNIT FIRMWARE VERSION
RS          : System Reset to
EM          : Setting EDID MODE. 1-STD 2-TV 3-USER.
USBISP      : Update FW by USB
A1~A8       : SET OUTPUT A SOURCE(1-8)
B1~B8       : SET OUTPUT B SOURCE(1-8)
C1~C8       : SET OUTPUT C SOURCE(1-8)
D1~D8       : SET OUTPUT D SOURCE(1-8)
E1~E8       : SET OUTPUT E SOURCE(1-8)
F1~F8       : SET OUTPUT F SOURCE(1-8)
G1~G8       : SET OUTPUT G SOURCE(1-8)
H1~H8       : SET OUTPUT H SOURCE(1-8)
AB..1~AB..8 : Switch output ABCD... to 1~8 at the same time
UARTSW?     : Display the uart switching state
UARTBAUD?   : Display all the output's uart baud
UARTSW      : Switch output's uart to A~H
UARTSW0     : Switch output's uart to MCU
UARTBAUD    : Setting outputA~H's uart baud (1:9600bps,2:14400bps,3:19200bps,4:3
8400bps,5:57600bps,6:115200bps)
?           : SHOW DESCRIPT OF COMMAND
QUIT        : Telnet QUIT
```

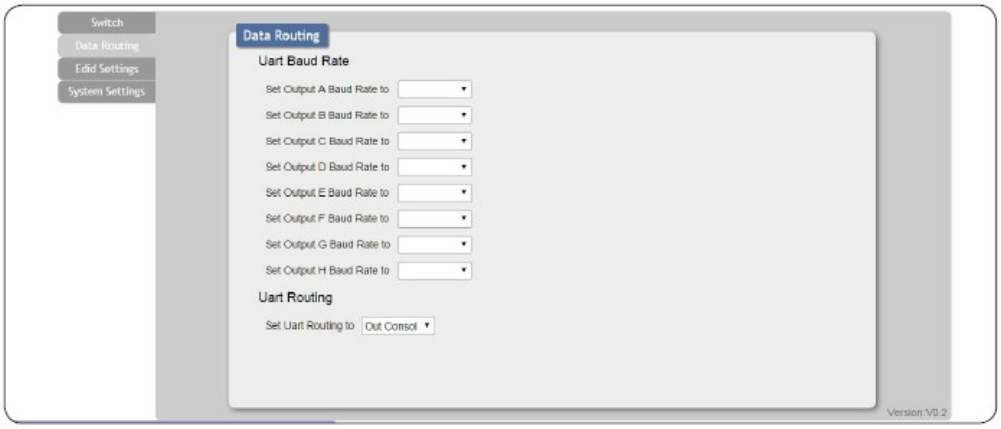
Note: *Commands will not be executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.*

WebGUI Control

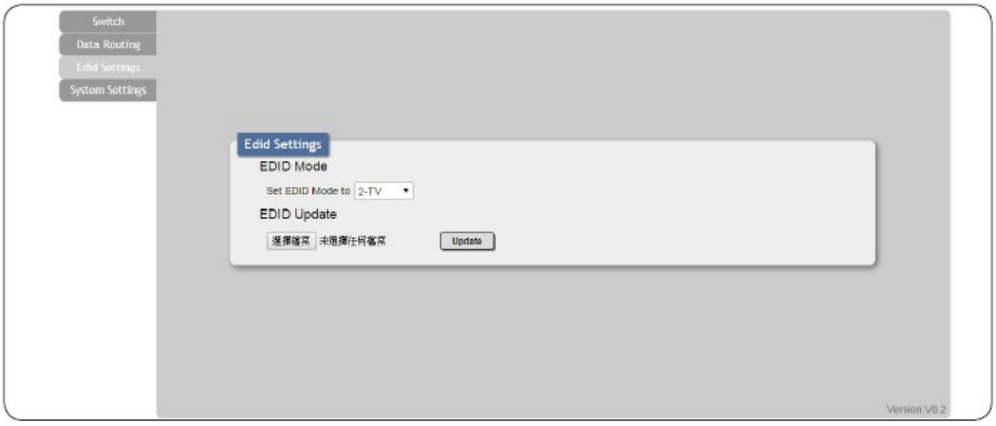
On a PC/Laptop which is connected to an active network system, open a web browser and type device's IP address (available from LCM monitor or OSD menu) on the web address entry bar. The browser will display the device's Switch, Data Routing, EDID Settings and System Settings.
Click 'Switch' page to switch Input and output setting.



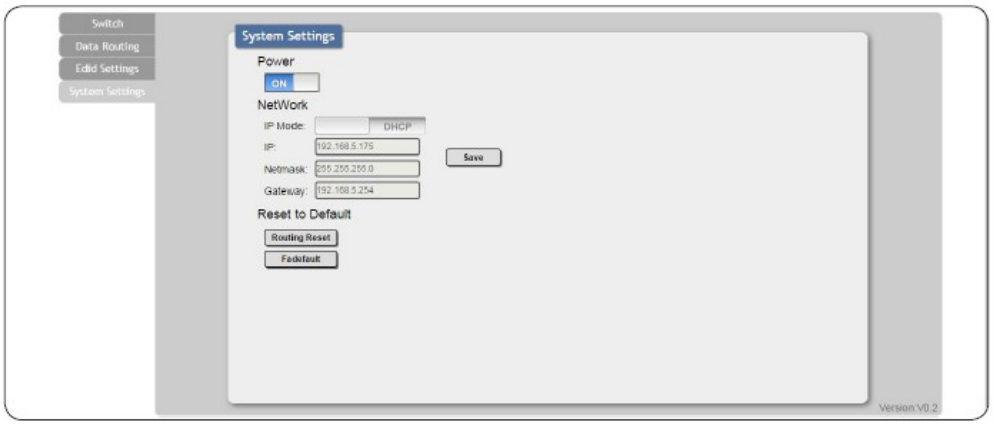
Click on 'Data Routing' page to set up Output Baud rate and Uart Routing status.



Click on 'EDID Settings' page to Setting EDID mode or update EDID.



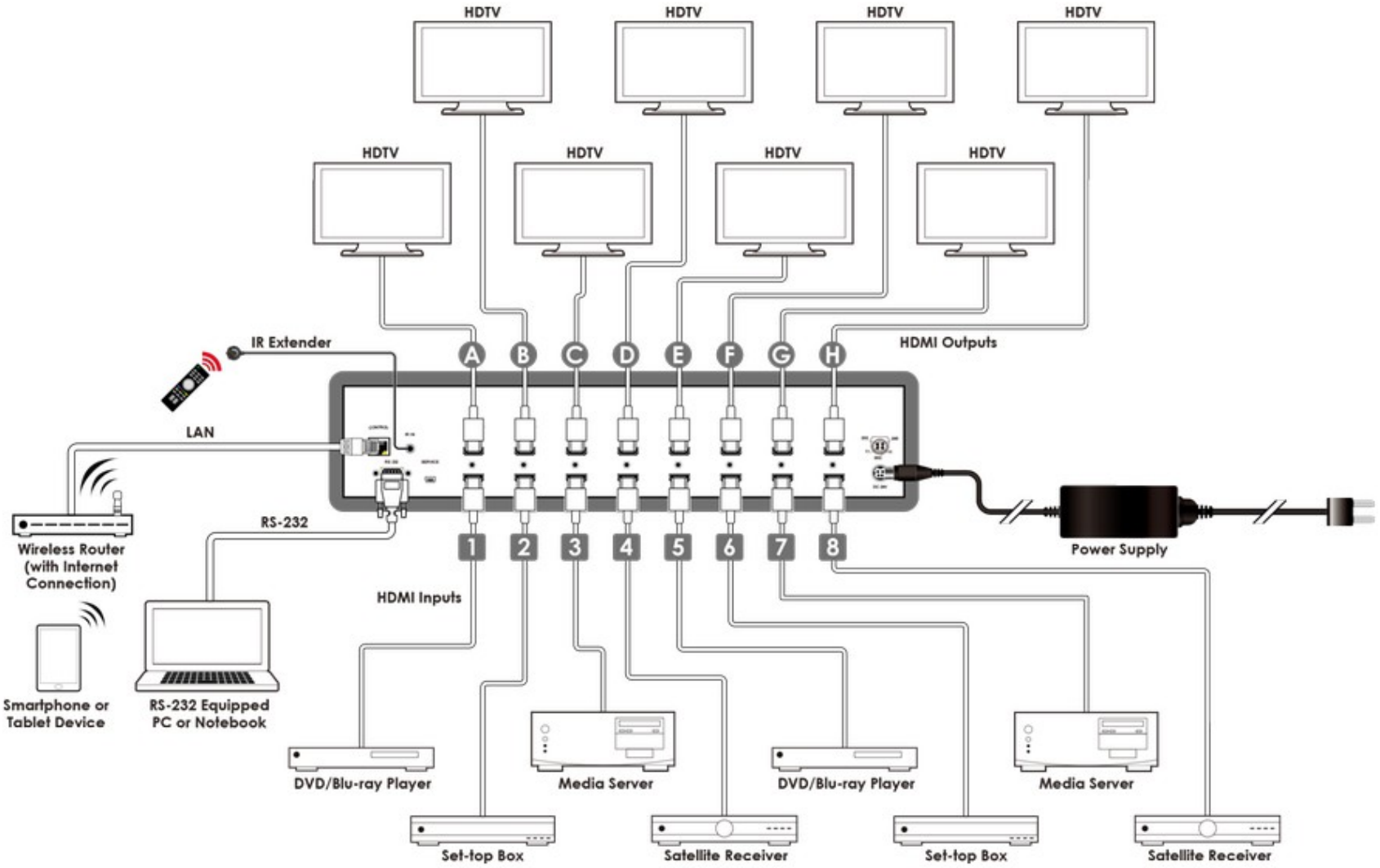
Click on 'System Settings' to control power on / off, Network status setting and reset to default settings.
Note: *It will need to click on save button once you finished network parameters setting.*



Specifications

Video Bandwidth	300 MHz/9 Gbps
Input Ports	8×HDMI, 1×IR (3.5mm), 1×RS-232 (9-pin D-sub), 1×Control (RJ-45), 1×USB (Service only)
Video Resolutions	480i~1080p@24/50/60, 4K@24/25/30, 4K@50/60 (YUV420) & VGA~WUXGA
IR Frequency	30~50 kHz
Baud Rate	115200 bps
Output Ports	8×HDMI
Power Supply	24 V/6.25 A DC (US/EU standards, CE/FCC/ UL certified)
ESD Protection	Human body model: ±8 kV (air-gap discharge) ±6 kV (contact discharge)
Dimensions	438 mm (W)×256.7 mm (D)×92 mm (H)
Weight	4592 g
Chassis Material	Metal
Color	Black
Operating Temperature	0˚C~40˚C/32˚F~104˚F
Storage Temperature	−20˚C~60˚C/−4˚F~140˚F
Relative Humidity	20~90% RH (non-condensing)

Supported Resolutions	Input	Output
640x480@60	√	√
720×480p@60	√	√
720×576p@50	√	√
800×600@60	√	√
1024×768@60	√	√
1280×720p@50	√	√
1280×720p@60	√	√
1280×1024@60	√	√
1600×1200@60	√	√
1920×1080i@50	√	√
1920×1080i@60	√	√
1920×1080p@24	√	√
1920×1080p@24FP	√	√
1920×1080p@25	√	√
1920×1080p@30	√	√
1920×1080p@50	√	-
1920×1080p@60	√	√
1920×1200@60 (RB)	√	√
3840×2160@24	√	√
3840×2160@25	√	√
3840×2160@30	√	√
3840×2160@50 (YUV420)	√	√
3840×2160@60 (YUV420)	√	√
4096×2160@24	√	√
4096×2160@50 (YUV420)	√	√
4096×2160@60 (YUV420)	√	√


HDTV
HDTV
HDTV
HDTV
HDTV
HDTV
HDTV
HDTV
IR Extender
HDMI Outputs
A
B
C
D
E
F
G
H
LAN
RS-232
Wireless Router
(with Internet
Connection)
Power Supply
1
2
3
4
5
6
7
8
HDMI Inputs
Smartphone or
Tablet Device
RS-232 Equipped
PC or Notebook
DVD/Blu-ray Player
Media Server
DVD/Blu-ray Player
Media Server
Set-top Box
Satellite Receiver
Set-top Box
Satellite Receiver