

**HDBaseT-Lite 8x8 UHD HDMI over CAT5e/6/7
Matrix with 24v PoC HDCP 2.2 - # 15531**



Operation Manual

Introduction

The 8 by 8 HDMI 4K2K Matrix over CAT5e/6/7 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 Web GUI from eight high definition sources to eight outputs over a single CAT5e/6/7 cable (up to 60m) for each output.

It supports high resolution digital audio formats such as LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio as well as 3D content that can be displayed when connecting a 3D TV and 3D source. The Power over Cable (PoC) function can power compatible receivers, providing greater flexibility in installations.

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(3840×2160@24/25/30 Hz & 3840×2160@50/60Hz with YUV420, 4096×2160@24/25/30Hz & 4096×2160@50/60Hz with YUV420)
- Supports distances up to 100 meters through CAT5e/6/7 cable
- 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 & DTS-HD Master Audio
- Supports PoC (Power over Cable) on compatible receivers only
- Supports bidirectional IR from inputs and output locations
- Supports RS-232, remote control, on-panel control and IP control (Telnet/Web GUI)
- 2U size design
- Compliant with DVI source

Note: *The PoC function is designed for powering compatible receiver units only—non-PoC receivers will need their own power supply. Receivers of another brand may not be compatible.*

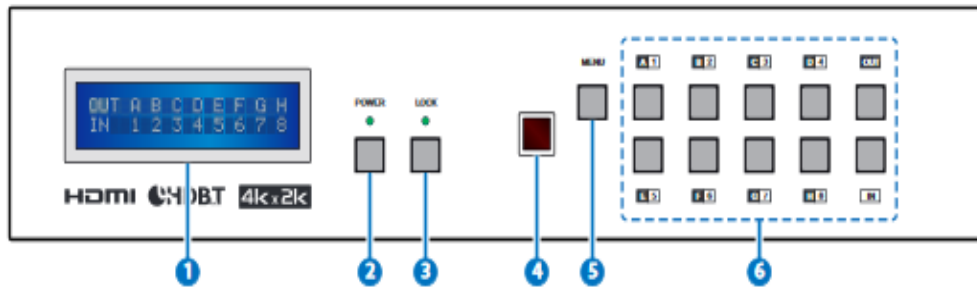


System Requirements

- 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
- Industry standard CAT5e/6/7 cables
- HDBaseT™ Receivers

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/off. The LED will illuminate green when the power is on, red when it is in 'Standby' mode.

3. LOCK:

Press this button for 3 seconds to lock all the buttons on the panel; press again for 3 seconds 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 In/Out:

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:

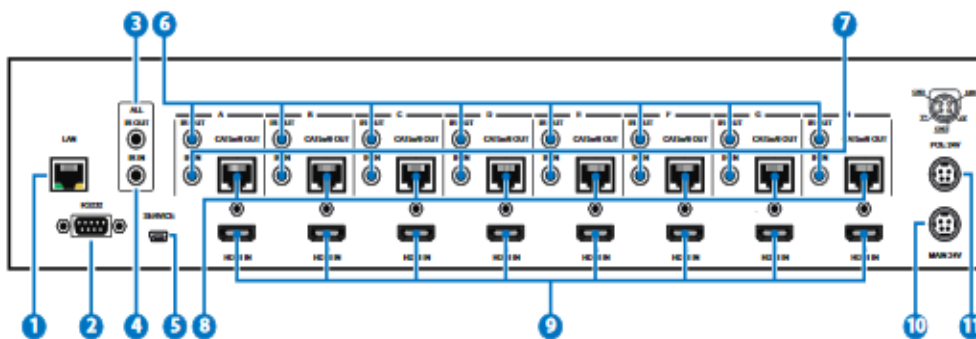
Press: Out → A → B → C → D → In → 1 → Menu,

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.

Rear Panel



1. LAN:

Connect to an active network for LAN serving and Telnet and Web GUI control (refer to Sections on Telnet and Web GUI).

When the Matrix or any compatible LAN equipped receivers are connected to a network, this allows the network access (including internet access if available) to be shared between the Matrix and all connected receivers. Connect any Ethernet equipped device e.g. a Smart TV or games console to the LAN port of a receiver for that device to share the network/internet access.

Warning: Please do not connect more than one active Ethernet link within the Matrix system.

2. RS-232:

Connect to a PC or control system with D-Sub 9-pin cable for the transmission of RS-232 commands.

3. ALL IR OUT:

Connect to the IR blaster for IR signal transmission to the source side. Place the IR blaster in direct line-of-sight of the equipment to be controlled for it will blaster out all signal received from the IR IN at the receiver sides.

4. ALL IR IN:

Connect to the IR extender for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR extender for it will send out the signal to all receiver's IR OUT.

5. SERVICE:

Manufacturer use only.

6. IR OUT 1~8:

Connect to the IR blasters for IR signal transmission. Place the IR blaster in direct line-of-sight of the equipment to be controlled for it will blaster out the IR signal received from the receiver side chosen by input selection.

7. IR IN 1~8:

Connect to the IR extenders for IR signal reception. Ensure that remote being used is within the direct line-of-sight of the IR extender for it will send out the IR signal to the selected receiver's IR OUT.

8. CAT5e/6/7 OUT 1~8:

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/RS-232 control signal transmission.

Warning: Please do not connect the CAT5e/6/7 output into the receiver's LAN port.

9 . 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.

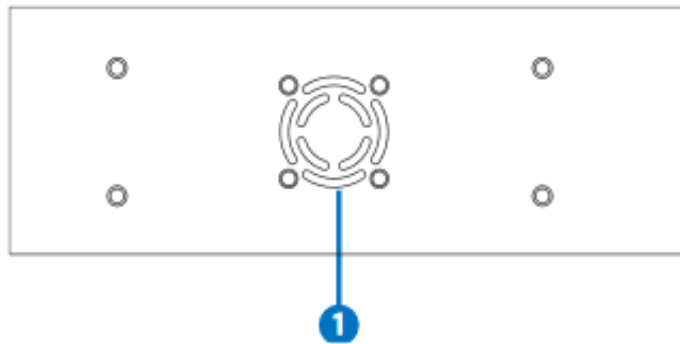
10 . DC 24V MAIN POWER:

Plug the 24 V DC power supply into the unit and connect the adapter to an AC outlet.

11 . PoE 24V:

Plug the 24 V PoE power supply into the unit and connect the adaptor to an AC outlet. This unit provides the power supply for PoE (Power over Ethernet) capable receiver units.

Side Panel



1. Fan Ventilator:

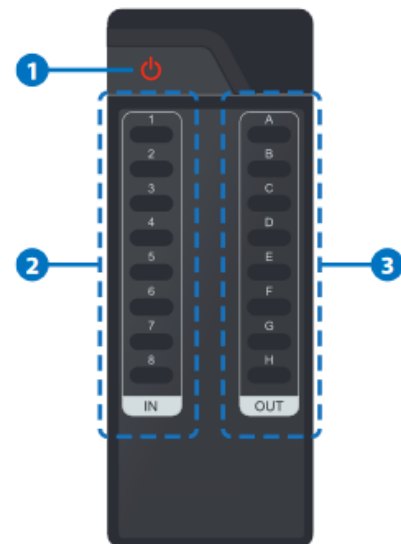
These are air ventilation areas, **DO NOT** block these areas or cover it with any object. Please allow adequate space around the unit for air circulation

Remote Control

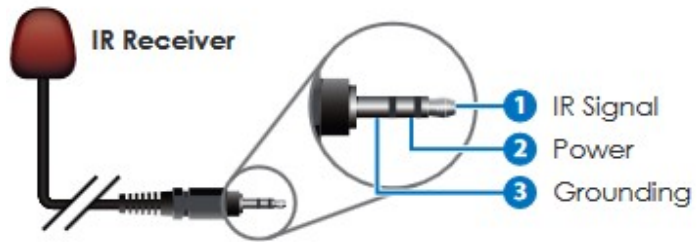
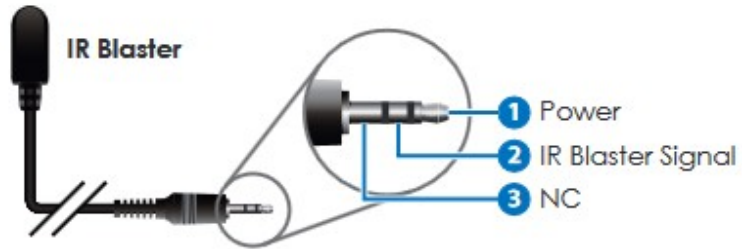
1. **POWER:** Press this button to switch on the device or set it to standby mode.

2. **IN:** Input ports selection 1~8.

3. **OUT:** Output ports selection A~H



IR Cable Pin Assignment



D-Sub 9-Pin Assignment

HDBaseT 8x8 Matrix	
Pin	Assignment
1	N/C
2	Tx
3	Rx
4	N/C
5	GND
6	N/C
7	N/C
8	N/C
9	N/C



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

Baud Rate: 115200 bps

Data bit: 8 bits

Parity: None

Stop Bit: 1

Flow Control: None

**RS-232 and 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...N	Switch output AB... to input N.	N=1~8
SETIP <x.x.x.x><x.x.x.x> <x.x.x.x>	Setting IP. SubNet. GateWay (Static IP)	X=0~255
RSTIP	Set IP configuration to DHCP	None
IPCONFIG	Display the current IP config	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)
P0	Power OFF	None
P1	Power ON	None
ST	Show unit firmware version	None
RS	Routing reset to default	None
EMN	Setting EDID mode N	N=1 (Standard)/2 (TV)
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
USBISP	Update firmware via USB	None
UARTSWN	Switch output's UART to port N	N=0 (out console), 1~8
UARTSW?	Display the UART switching state	None
?	Display all the available commands	None
@FADEFAULT	Set to factory default	None
Quit	Exit(for telnet only)	None

Note:

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

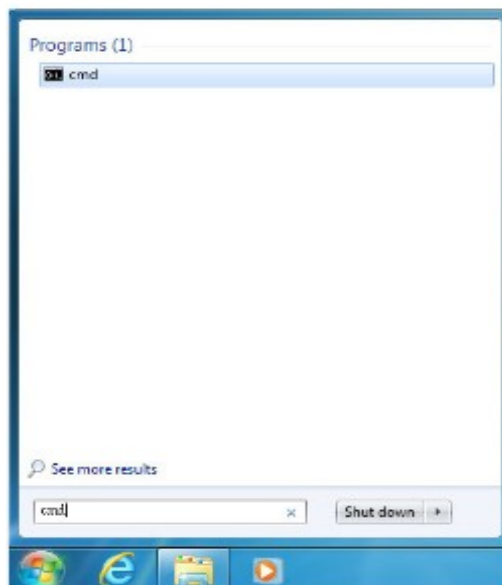
Telnet Control

Before attempting to use the telnet control, please ensure that both the Matrix (via the 'LAN 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", the IP address of the unit you wish to control and "23", then hit enter.

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>telnet 192.168.5.175
```

This will bring us into the device 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-IU 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:

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.



Web GUI Control

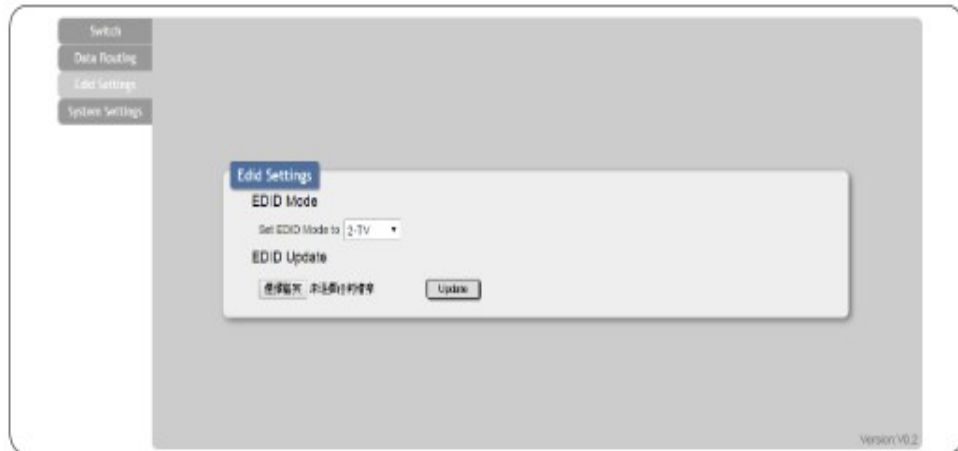
On a PC/Laptop which is connected to an active network system, open a web browser and type device's IP address (available from LCM monitor or OSD menu) on the web address entry bar. The browser will display the device's Switch, Data Routing, EDID Settings and System Settings. Click 'Switch' page to switch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



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

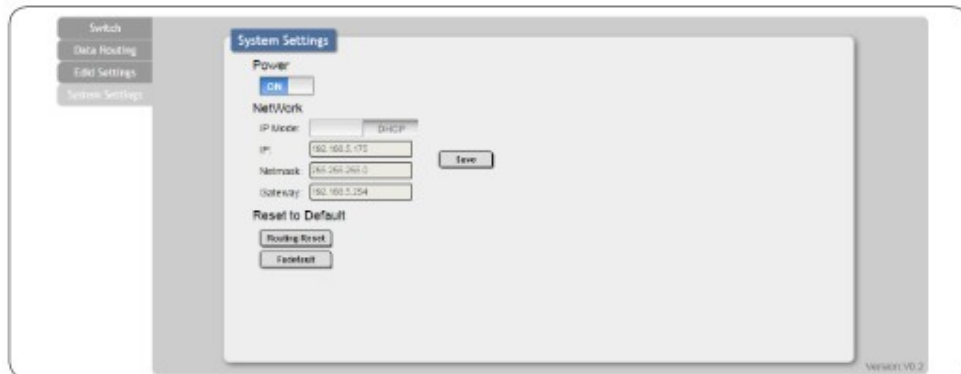


Click on 'EDID Settings' page to Setting EDID mode or update EDID



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, 9×IR (3.5mm), 1×RS-232 (9-pin D-sub), 1×Control (RJ-45), 1×USB (Service only)
Output Ports	8×CAT5e/6/7, 9×IR (3.5mm)
Video Resolutions	480i~1080p@24/50/60, 4K@24/25/30, 4K@50/60 (YUV420) & VGA~WUXGA
Power Supply	24 V/6.25 A DC (US/EU standards, CE/FCC/UL certified)
ESD Protection	Human Body model: ± 8kV (air-gap discharge) ± 4kV (contact discharge)
Baud Rate	115200bps
IR Frequency	30~50 kHz
Dimensions	438 mm (W)×256.7 mm (D)×92mm (H)
Weight	4592g
Chassis Material	Metal
Silkscreen 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 (no condensation)
Power Consumption	89 W

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

Connection Diagram

