8x16 HDMI and HDBaseT Matrix Switcher

4K 4:4:4 / HDR / 18gbps / PoC / IR / ARC

User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating, or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

The 8x8 HDMI and HDBaseT Matrix Switcher supports 8 HDMI inputs to 8 HDbaseT and 8 mirrored HDMI outputs. It supports 4K2K@60Hz YUV 4:4:4, 18Gbps, HDR, and HDCP 2.2. You can switch any of 8 sources to any of HDMI and HDBaseT outputs (HDMI and HDBaseT outputs mirror each other). The HDBaseT ports have a distance range of up to 230 feet or 70 meters for resolutions up to 1080P@60Hz, and a distance range of up to 130 feet or 40 meters for resolution up to 4K2K60Hz via single cat5e/6/6a/cat7 cable.

The product also supports ARC functionality. It can return the audio signal from the HDMI or HDbaseT display devices and output that signal to the coaxial audio outputs. The matrix can also extract the audio signal from HDMI source devices to analog audio outputs. Moreover, the product supports two-way IR and RS-232 functionality. The IR signals from the HDbaseT recievers to the matrix acts as a matrix. The matrix ensures that any IR command that you send back to the matrix will only communicate to the media source that you're currently watching. For example, let's say that you have 8 cable boxes connected to the matrix that share the same IR remote control. If you're watching cable box 1 in your living room, and push GUIDE on the remote control, the matrix will only send the GUIDE command to cable box 1, and not to any of the other 7 cable boxes.

2. Features

- ☆ HDMI 2.0b, HDCP 2.2 and HDCP 1.4 compliant
- ☆ Supports 8 HDMI sources to 8 HDMI and HDBaseT outputs
- ☆ Video resolution up to 4K@60Hz HDR (YUV 4:4:4)
- ☆ All HDBaseT ports support 4k@60Hz (YUV 4:4:4) to a distance of 130 feet / 40 meters or 1080p@60Hz to a distance of 230 feet / 70 meters via CAT 5e/6/7 cable
- ☆ Audio, Video, Power, Infrared (IR), and RS-232 serial are all transmitted via single CAT cable
- ☆ LPCM, Dolby TrueHD, Dolby Atmos and DTS-HD Master Audio are all supported
- ☆ Supports ARC functionality, outputting return audio out of the digital coax ports
- ☆ Supports extraction HDMI source device audio to analog audio outputs
- ☆ HDbaseT receivers support scaling (4K sources can be seen on 1080p TVs)
- ☆ HDR, CEC and smart EDID managment are supported
- ☆ Control via front panel button, IR remote, RS-232, TCP/IP, Web GUI and ASCII code
- ☆ 2U rack mounted design with aluminum housing on the front

3. Package Contents

① 1x 8 by 8 HDMI and HDBaseT Matrix Switcher
② 8x HDBaseT Receivers
③ 9x Wideband IR Blaster cables (1.5 meters)
④ 10x Wideband IR Receiver cables (1.5 meters)
⑤ 1x IR Remote
⑥ 1x 100~240V AC 50/60Hz Power cable
⑦ 1x RS-232 serial cable (1.5 meters, male to femle head)
⑧ 16x 3-pin Phoenix Connectors
⑨ 18x Mounting Ears (Matrix and Receiver)
⑩ 1x User Manual

4. Specifications

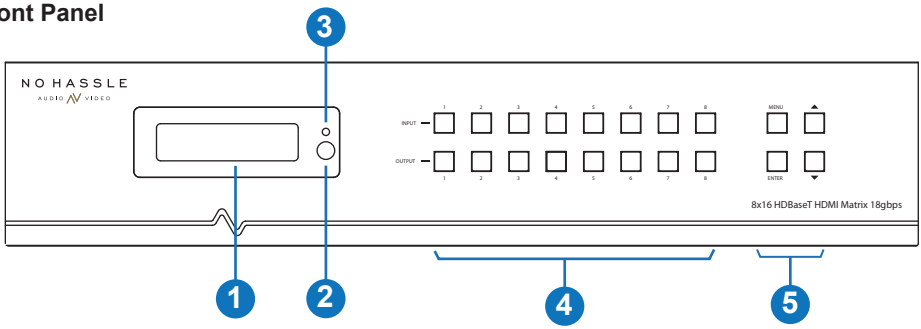
Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Bandwidth	18Gbps
Video Resolution	Up to 4K2K@50/60Hz HDR (YUV 4:4:4)
Color Space	RGB, YCbCr 4:4:4, YUV 4:4:4, YCbCr 4:2:2/4:2:0
Color Depth	8-bit, 10-bit, 12-bit (1080p@60Hz) 8-bit, 10-bit (4K2K@60Hz)
HDMI Audio Formats (Pass-through)	PCM2.0/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX,DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD, Dolby Atmos
Coax Audio Formats	PCM 2.0, Dolby Digital / Plus, DTS
L/R Audio Formats	PCM 2.0 44.1/48/88.2/96/176.4/192KHz, 16/20/24bit
HDR formats	4:4:4,4:2:2,4:2:0(10,12bit deep color) HDR10,HDR10+,Dolby Vision, HLG
Infrared	20KHz ~ 60KHz
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)

Connections	
Matrix	
Input Ports	8×HDMI Type A [19-pin female] 9×IR INPUT [3.5mm Stereo Mini-jack] 1×IE EXT [3.5mm Stereo Mini-jack]
Output Ports	8×HDMI Type A [19-pin female] 9×IR OUTPUT [3.5mm Stereo Mini-jack] 8×L/R Audio OUTPUT [3.5mm Stereo Mini-jack] 8×Coaxial Audio OUTPUT [RCA] 8×HDBaseT OUTPUT [RJ45]
Control Ports	8×RS-232 [Phoenix jack] 1×LAN [RJ45] 1×RS-232 [DB9]
HDBaseT Receiver	
Input Ports	1×HDBaseT IN [RJ45] 1×IR IN [3.5mm Stereo Mini-jack]
Output Ports	1×HDMI Type A [19-pin female] 1×IR OUT [3.5mm Stereo Mini-jack]
Control Ports	1×RS-232 [Phoenix jack]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	TX: 440mm (W)×372.5mm (D)×88mm (H) RX: 162.8mm (W)×90mm (D)×18mm (H)
Weight	TX: 6.8kg, RX: 350g
Power Supply	100~240V AC 50/60Hz Power cable
Power Consumption	85W (Max)
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)

5. Operation Controls and Functions

5.1 Matrix Panel

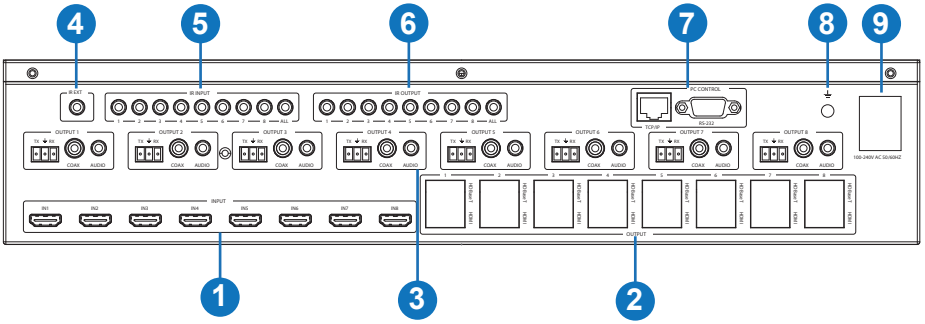
Front Panel



Number	Name	Function descriptions
1	OLED screen	Displays system status including input / output port, Select EDID, Select Baud, DHCP / IP, Save / Recall / Clear preset.
2	IR Window	IR receiver window, receives commands from IR remote control.
3	Power LED	The LED will illuminate in green when the product is connected power supply, and red when the product is standby status.
4	Output / Input button	To change a source on a display, you must first push an output button (display) and then an input button (source)
5	MENU / ▲ / ▼/ ENTER	① **Copy EDID to input source:** On the initial OLED display screen, press the “MENU” button to select “EDID” setting option, and then press ”▲” or “▼” button to select EDID you need to set. Then press the “ENTER” button, press ”▲” or “▼” button to select input port you need to set. Finally, press the “ENTER” button to confirm this operation. ② **Select Baud:** On the initial OLED display screen, press the “MENU” button to select “BAUD” option, and then press ”▲” or “▼” button to select Baud you need to set. Finally, press the “ENTER” button to confirm this operation. ③ **Check DHCP / IP:** On the initial OLED display screen, press the “MENU” button to select “DHCP /IP” option and check current DHCP status and IP address. ④ **Save Preset:** First, you need to set input and output preset through front panel button or IR remote. Then press the “MENU” button to select “SAVE PRESET” option, press ”▲” or “▼” button to select a preset label you want to save. Finally, press the “ENTER” button to confirm this operation. **Note:** There are ten save preset labels in total.

Number	Name	Function descriptions
5	MENU / ▲ / ▼/ENTER	⑤ **Recall Preset:** When you have saved a preset label in “SAVE PRESET”operation, you can recall any of your saved presets. Press the “MENU” button to select “RECALL PRESET” option, press ”▲” or “▼” button to select the preset label you want to recall. Finally, press the “ENTER” button to confirm this operation. ⑥ **Clear Preset:** Press the “MENU” button to select “CLEAR PRESET” option, press ”▲” or “▼” button to select the preset label you want to clear. Finally, press the “ENTER” button to confirm this operation.

Rear Panel



Number	Name	Function descriptions
1	HDMI INPUT port	HDMI input port, connect to HDMI source device such as Cable Box, BluRay, or PS4 with HDMI cable.
2	HDBaseT port	Connect to HDBaseT Recevier with CAT cable.
	HDMI OUTPUT port	HDMI output port, connect to HDMI display device or a surround sound receiver
3	RS-232 port	Connect to a PC or control system by 3-pin phoenix connector cable to transmit commands between Matrix and HDBaseT receiver.
	COAX / AUDIO port	Digtal Coaxial and Analog L/R audio output ports, connect to audio output devices such as audio amplifier or speaker.

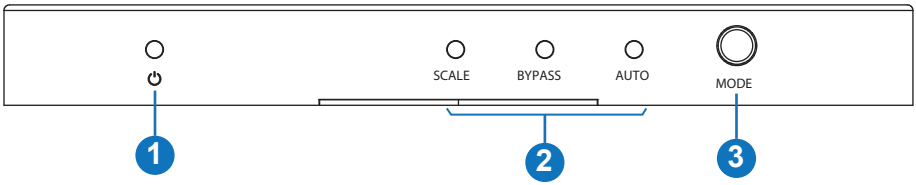
Number	Name	Function descriptions
4	IR EXT	If the front IR window of the unit is obstructed or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the “IR EXT” port to receive the IR remote signal.
5	IR INPUT	Connect to IR receiver cable, the IR receive signal will emit to “IR OUT” port of the HDBaseT recevier.
6	IR OUTPUT	Connect to IR blaster cable, the IR emit signal is from “IR IN” port of the HDBaseT receiver.
7	PC CONTROL	TCP/IP port: This port is the link port for TCP/IP control and connect to an active Enternet link by an RJ45 cable.
		RS-232 port: Connect to a PC or control system by D-Sub 9-pin cable to control the Matrix.
8	GND	The housing is connected to the ground.
9	POWER input	Connect to 100~240V AC 50/60Hz power cable.

Connection Signal Indicator Lamp
▪ Illuminate: Matrix and HDBaseT Receiver are in good connection status. ▪ Flashing: Matrix and HDBaseT Receiver are in poor connection status. ▪ Dark: Matrix and HDBaseT Receiver are not connected.

Data Signal Indicator Lamp
▪ Illuminate: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.

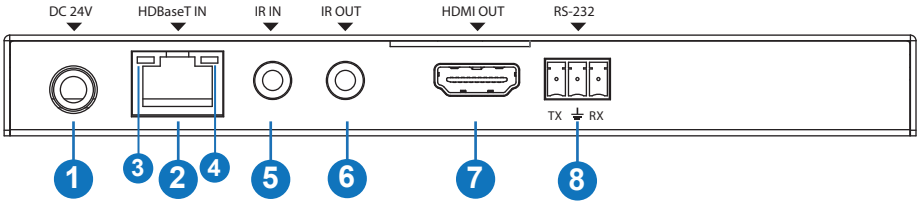
5.2 HDBaseT Receiver Panel

Front Panel



Number	Name	Function descriptions
1	POWER LED	Power LED indicator, the white LED will illuminate when HDBaseT port of the HDBaseT Receiver is connected HDBaseT port of the Matrix with CAT cable.
2	SCALE / BYPASS / AUTO LED	The SCALE, BYPASS or AUTO LED will illuminate when scale, bypass or auto function is selected by MODE button, Web GUI or ASCII code. ▪ SCALE function: The resolution of the source device with 4K60 / 4K30 will downscale to 1080p60 / 1080P30 to the display device of the HDBaseT receiver. ▪ BYPASS function: The resolution of the source device will bypass to the display device of the HDBaseT receiver. ▪ AUTO function: The resolution of the source device will send matching the best resolution to the display device of the HDBaseT receiver.
3	MODE button	Press this button to select “SCALE”, “BYPASS” or “AUTO” function.

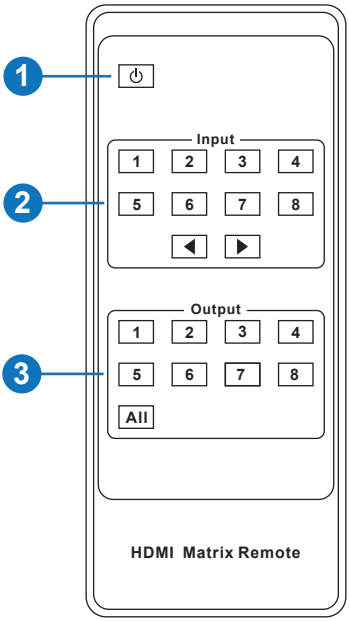
Front Panel



Number	Name	Function descriptions
1	DC 24V	This power port can be ignored. Power for the HDbaseT receivers comes from the CAT cable to the matrix
2	HDBaseT IN port	Connect to HDBaseT output port of the Matrix with CAT cable.
3	Connection Signal Indicator Lamp	▪ Illuminate: Matrix and Receiver are in good connection status. ▪ Flashing: Matrix and Receiver are in poor connection status. ▪ Dark: Matrix and Receiver are not connected.
4	Data Signal Indicator Lamp	▪ Illuminate: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.

Number	Name	Function descriptions
5	IR IN	Connect to IR receiver cable, the IR signal will emit to IR OUT port of the Matrix.
6	IR OUT	Connect to IR blaster cable, the IR emit signal is from IR IN port of the Matrix.
7	HDMI OUTPUT port	HDMI output port, connect to HDMI display device such as TV or monitor with HDMI cable.
8	RS-232 port	Connect to a PC or control system by 3-pin phoenix connector cable to transmit commands between Matrix and HDBaseT receiver.

6. IR Remote



① **Power on or Standby:** Power on the Matrix or set it to standby mode.

② **Input 1/2/3/4/5/6/7/8:** Select input source button.

◀ ▶ : Select the last or next input source button.

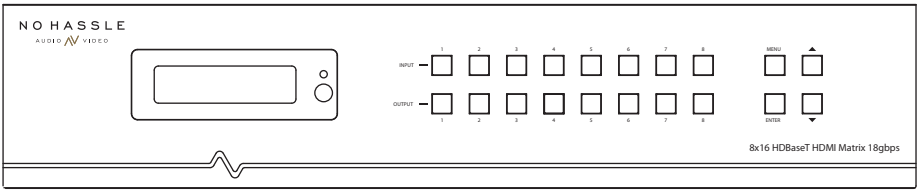
③ **Output 1/2/3/4/5/6/7/8 button:** Select output source button.

All: Select all output source simultaneously. For example, when you select the “All” button and then select input “1” button, the input “1” source will output to all display devices

Operation instructions: You need to select output button first, and then select input button.

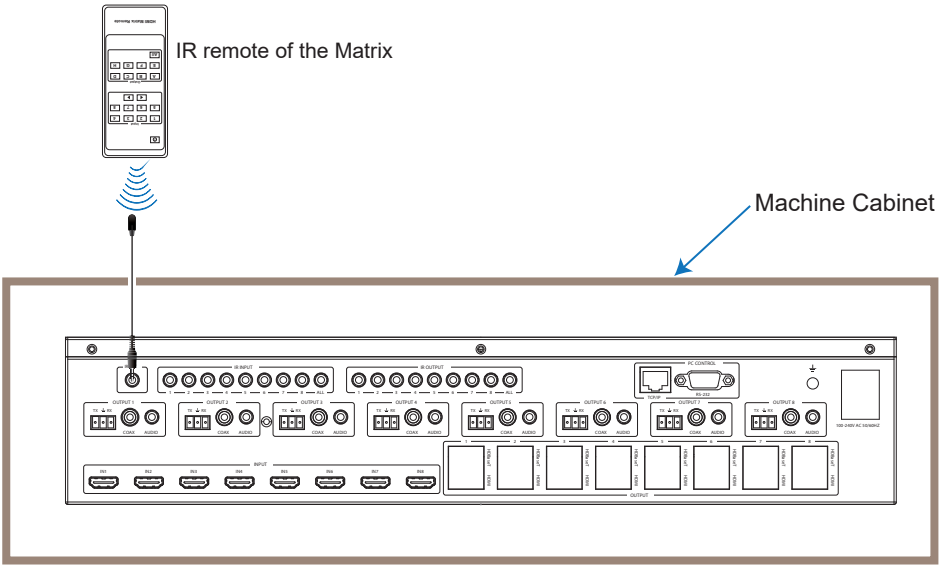
There are two different methods to sending IR commands to the Matrix

Method One: The IR window will accept IR remote signal. The max distance of the IR remote is 7 meters. A diagram is shown below:



IR remote of the Matrix

Method Two: If the front IR window of the Matrix is obstructed or the Matrix is installed in a closed area out of infrared line of sight, a IR receiver cable can be inserted to the “IR EXT” port to receive the IR remote signal. The max distance of the IR remote is 7 meters and the IR remote must directly face the IR reciever head. A diagram is shown as below.



7. IR Control System

The matrix handles all the IR command routings intelligently and supports 2-way IR control. When the Matrix is connected to HDBaseT receivers through Cat 5e/6/6a cable, you can be sure that the IR commands that you send to the matrix will only reach the media sources that you are currently watching.

When sending commands from matrix to HDbaseT receivers: Connect the IR receiver (rectangle ends) to the IR inputs of the matrix and the IR blasters (teardrop ends) to the IR outputs of the HDbaseT receivers. IR input 1 will always send IR commands to the IR output of HDbaseT receiver 1. IR input 2 will always send IR commands to the IR output of HDbaseT receiver 2...and so on. IR input ALL will send IR commands to the IR outputs of ALL HDbaseT receivers at the same time.

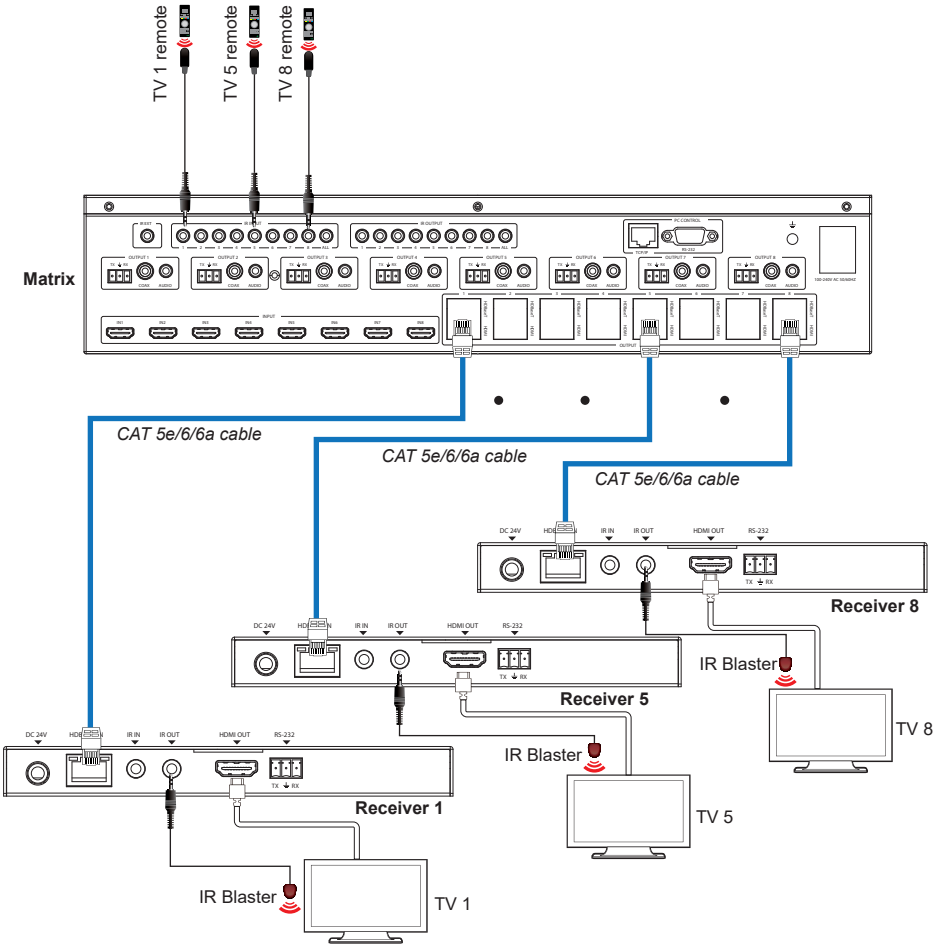


Figure 1: IR connection diagram (Matrix end)

When sending commands from HDbaseT receivers to matrix: Connect the IR receiver (rectangle ends) to the IR inputs of the HDbaseT receivers and the IR blasters (teardrop ends) to the IR outputs of the matrix. Then stick the teardrop ends of IR blasters to each of your media sources. IR output 1 connects to media source 1. IR output 2 connects to media source 2...and so on. The matrix ensures that any IR command that you send back to the matrix will only communicate to the media source that you're currently watching.

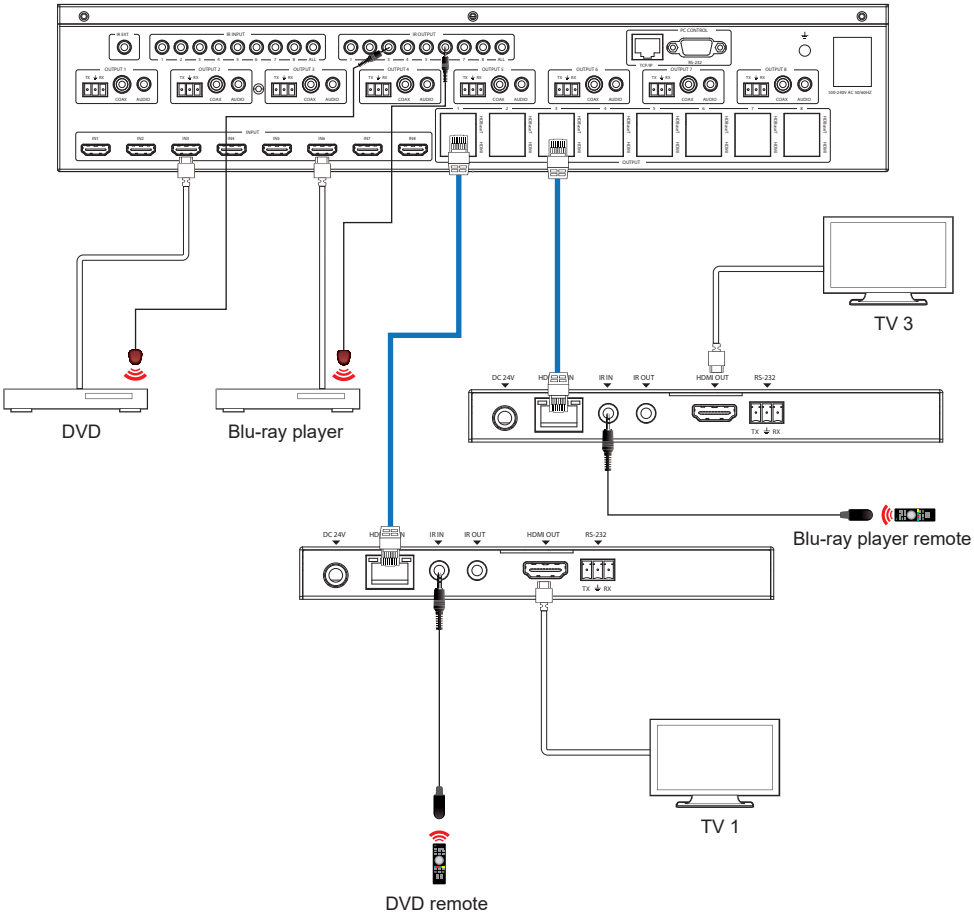
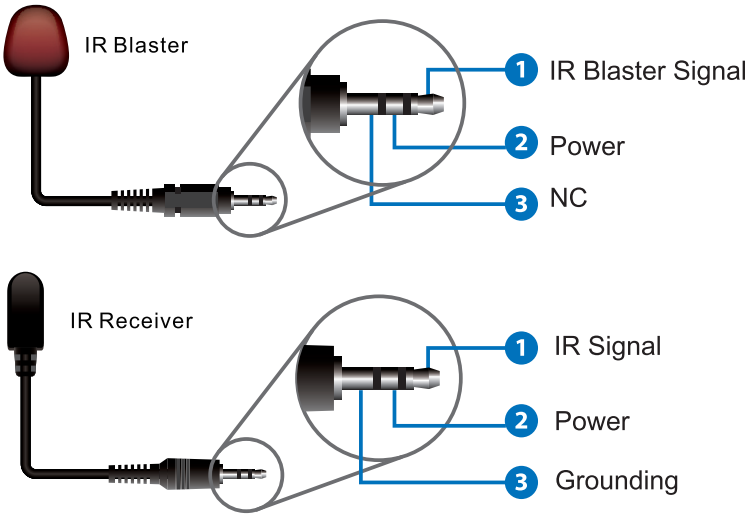


Figure 2: IR connection diagram (HDBaseT Receiver end)

8. IR Cable Pin Assignment

IR RECEIVER

IR BLASTER



9. EDID Management

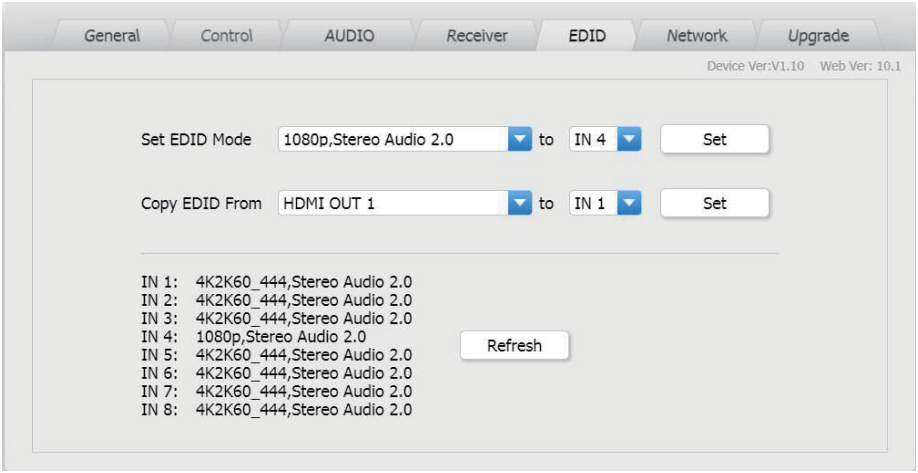
This Matrix has 24 factory defined EDID settings & 8 copy EDID modes. You will need to assign each input port one of these EDID options.

On-panel button operation: On the initial OLED display screen, press the “MENU” button to select “EDID” setting option, and then press ”▲” or “▼” button to select EDID you need to set. Then press the “ENTER” button, press ”▲” or “▼” button to select input port you need to set. Finally, press the “ENTER” button to confirm this operation.

The OLED screen to show current EDID status.

Through “MENU” and corresponding “▲” , “▼” and “ENTER” button to select EDID setting.

Web GUI Operation: Please check “EDID page” in the “11. Web GUI User Guide”.



The defined EDID settings are shown below:

EDID Mode	EDID Description
1	1080p, Stereo Audio 2.0
2	1080p, Dolby/DTS 5.1
3	1080p, HD Audio 7.1
4	1080i, Stereo Audio 2.0
5	1080i, Dolby/DTS 5.1
6	1080i, HD Audio 7.1
7	3D, Stereo Audio 2.0
8	3D, Dolby/DTS 5.1
9	3D, HD Audio 7.1
10	4K2K30_444, Stereo Audio 2.0
11	4K2K30_444, Dolby/DTS 5.1
12	4K2K30_444, HD Audio 7.1
13	4K2K60_420, Stereo Audio 2.0
14	4K2K60_420, Dolby/DTS 5.1
15	4K2K60_420, HD Audio 7.1
16	4K2K60_444, Stereo Audio 2.0
17	4K2K60_444, Dolby/DTS 5.1
18	4K2K60_444, HD Audio 7.1
19	4K2K24, Stereo 2.0 HDR
20	4K2K24, Dolby/DTS 5.1 HDR
21	4K2K24, HD Audio 7.1HDR
22	4k2k60, Stereo 2.0 HDR
23	4K2K60, Dolby/DTS 5.1 HDR
24	4K2K60, HD Audio 7.1 HDR
25	Copy HDMI OUT 1
26	Copy HDMI OUT 2
27	Copy HDMI OUT 3
28	Copy HDMI OUT 4
29	Copy HDMI OUT 5
30	Copy HDMI OUT 6
31	Copy HDMI OUT 7
32	Copy HDMI OUT 8

10. Matrix Audio and RS-232 introduction

The Matrix has digital coax and analog audio outputs. The analog outputs will extract from its corresponding HDMI input. For example, if you have a cable box connected to HDMI input 1, analog output 1 will always be playing that cable box audio. The digital coax

If HDMI ARC switch and HDBaseT ARC switch are turned on by Web GUI or ASCII code, the coaxical audio output signal can from return HDMI or HDBaseT display device's audio or directly from extract HDMI source device audio. The analog audio output signal is from extract HDMI source device audio by Web GUI control.

The RS-232 channels allow for bi-directional communication. RS-232 port 1 on the back of the matrix will only send commands to HDbaseT receiver 1. RS-232 port 2 on the back of the matrix will only send commands to HDbaseT receiver 2...and so on.

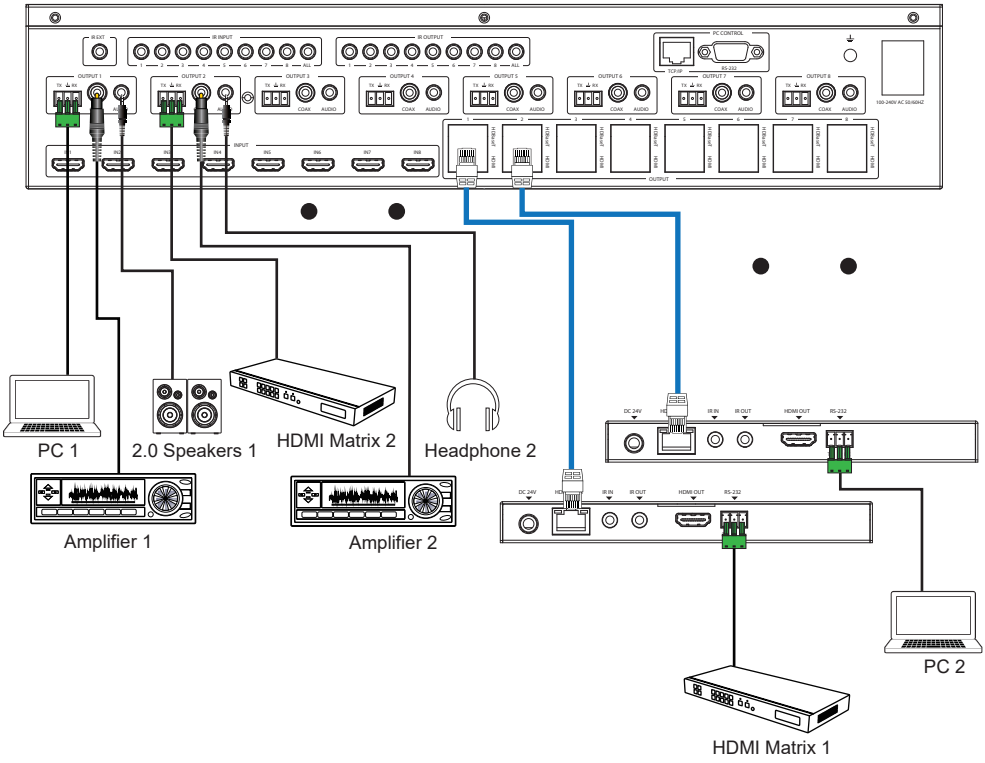


Figure 3: Audio and RS-232 connection diagram

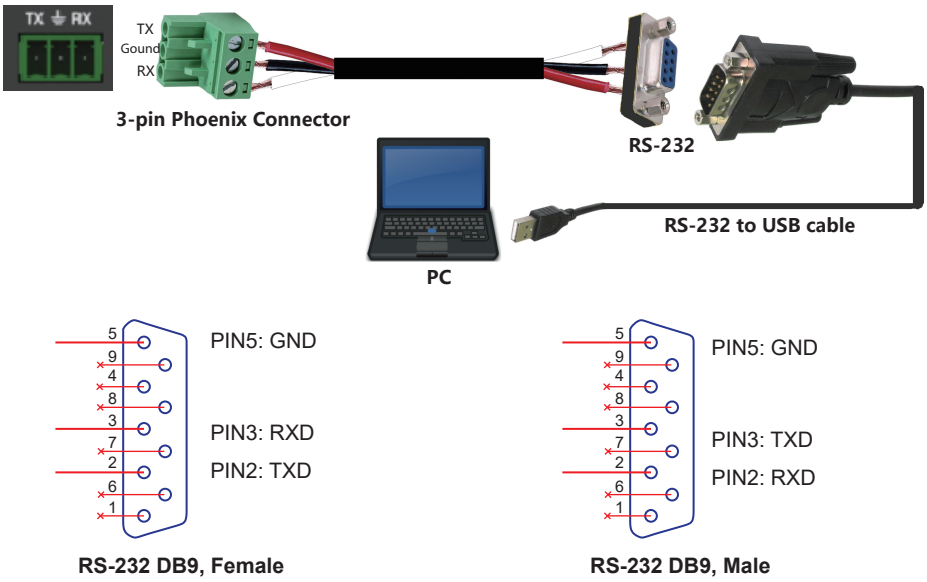


Figure 4: 3-pin phoenix connector to USB

11. Web GUI User Guide

The Matrix can be controlled by Web GUI. Out of the box, the matrix is set to DHCP, which means that your router will assign it a random IP address when connected to the TCP/IP port on the back of the matrix. You can also reach the matrix via 192.168.1.100 if a DHCP server is unavailable. You can find the IP address of the matrix via front panel buttons. On the initial OLED display, you can press the “MENU” button to select the “DHCP/IP” option and check current IP.

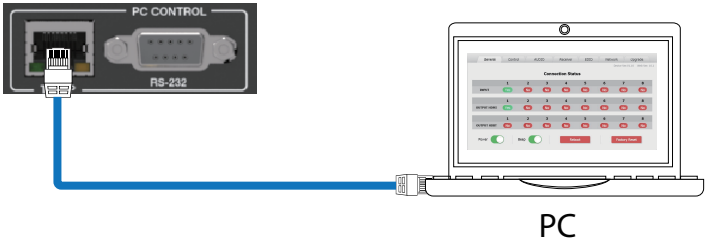
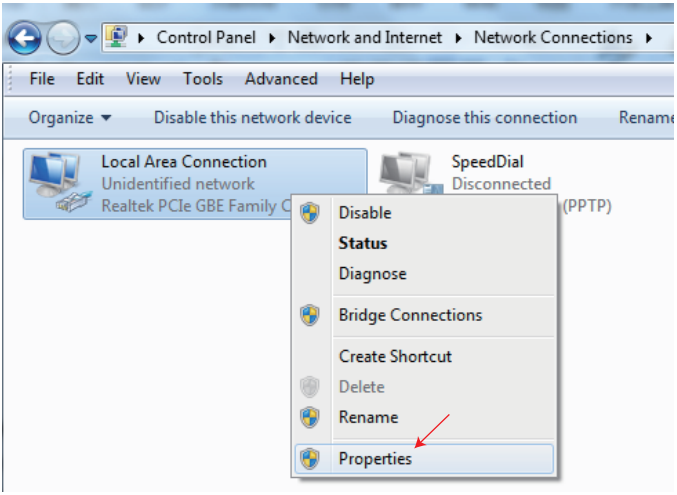
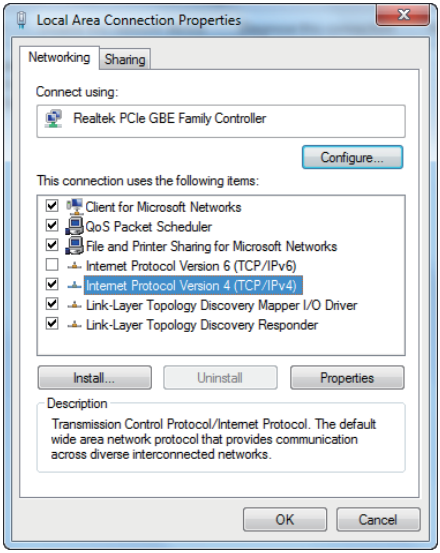


Figure 5: Web GUI connection diagram

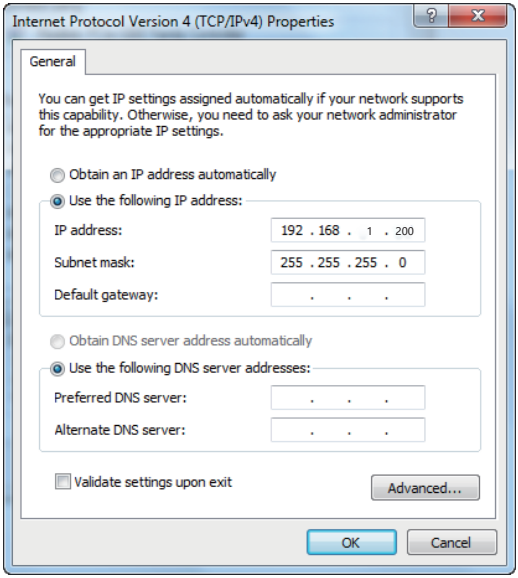
If a DHCP server isn’t available, you can still access the web interface with a PC or MAC
Step 1: Connect a CAT5e/6 cable from your PC to the TCP/IP port on the matrix
Step 2: On the PC, go to **Control Panel** > **Network and Internet** > **Network Connections** > **Local Area Connections**, right click on it, choose **Propertiers.**



Double click Internet Protocol Version 4 (TCP/IPv4)



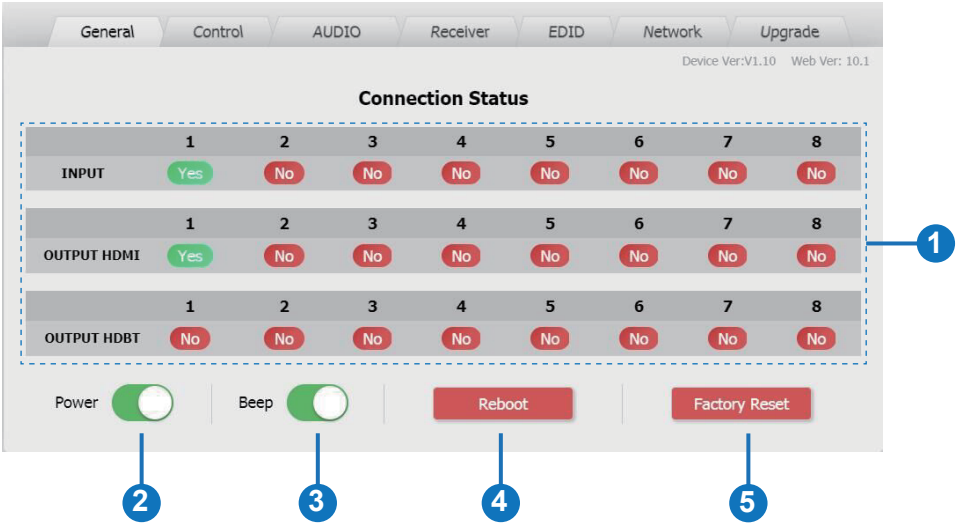
Choose “Use the following IP address”, input 192.168.1.200 as IP address, 255.255.255.0 as Subnet mask, and then click on OK, click on OK again.



Notice: The IP address of the computer and Matrix should be in the same network range. The Matrix's IP address is 192.168.1.100, and the computer's IP should be 192.168.1.XXX

Step 3: Input the IP address from front panel into your brower on the PC to enter Web GUI

General page



① Displays the Matrix current input and output port status. The Connection Status displays "Yes" when the Matrix has connected an active input and output source, and "No" when no connection is present.

② Power switch. The product will work when turn on this switch. Otherwise, the product will standby. In standby status, it is invalid that you set any function. The product will go back to the previous function status when the Power switch is turned on again.

③ Beep switch. Turn on this switch, pressing on-panel button of the Matrix will have voice. Turn off this switch, pressing on-panel button of the Matrix will mute.

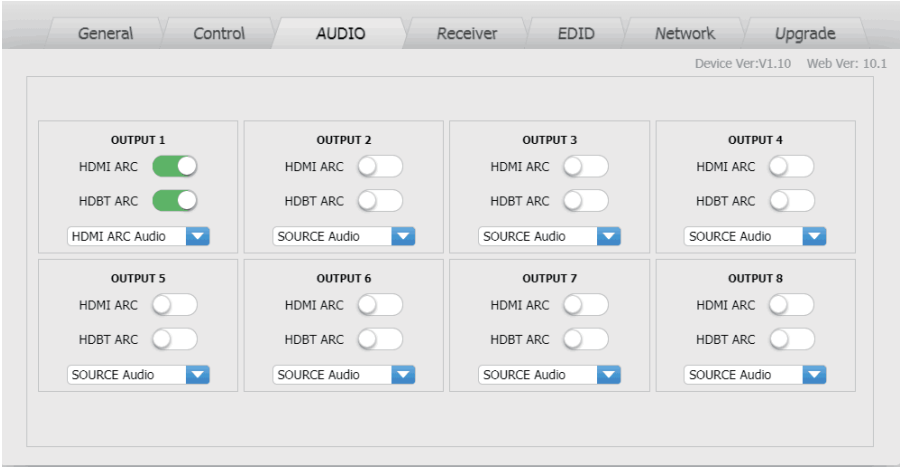
④ There will be a option frame when you click this button. Clicking the "Yes" button will reboot the product, after rebooted the product and all functions will go back to the previous function status. Clicking the "No" button will close the option frame.

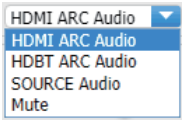
⑤ There will be a option frame when you click this button. Clicking the "Yes" button will set the product to factory default status. When the product has finished this setting, you need to login in the Web GUI again on the PC browser. At this time, all settings have been cleared. For example, input and output is one-to-one display, the Beep switch is turn off and the DHCP switch is turn on, etc. **It is important that the IP address will go back to default value (192.168.1.100).** Clicking the "No" button will close the option frame.

Control page

Select input corresponding output port. The horizontal is input port and the vertical is output port.

AUDIO page



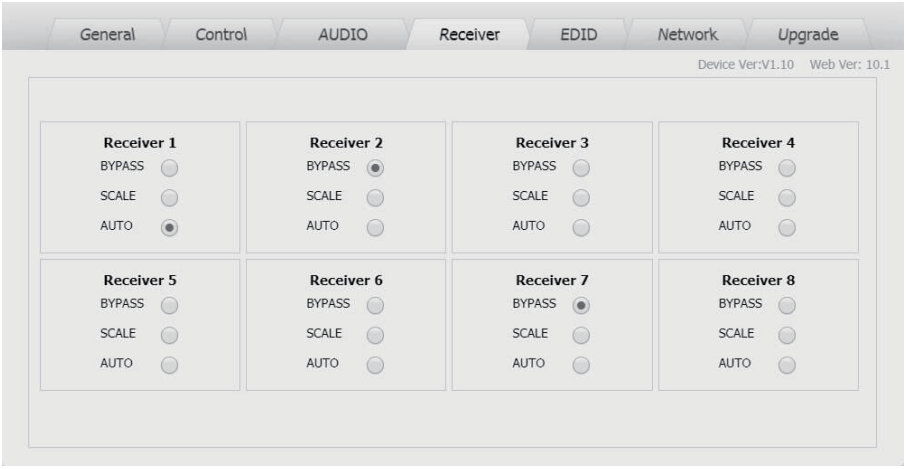


picture 1

You must pay attention to the AUDIO setting page to control all coaxial audio ports of Matrix. All analog audio output ports signal of Matrix is from HDMI source device.

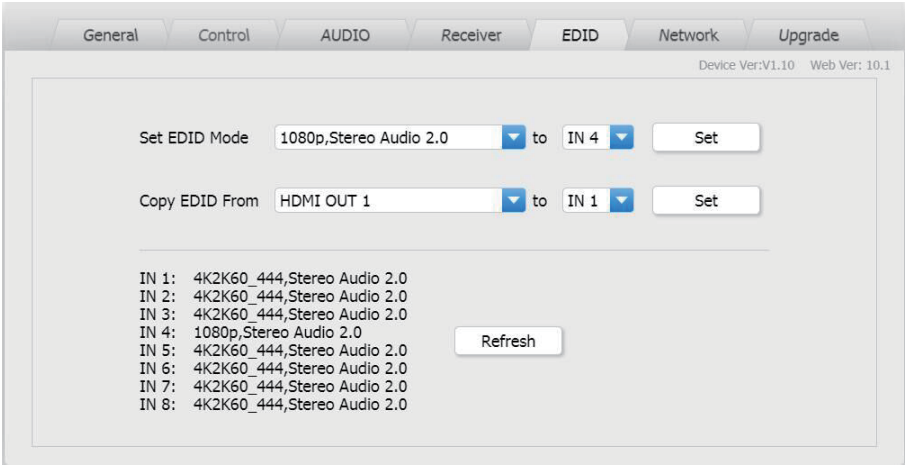
For coaxial audio, firstly you need to turn on HDMI ARC and HDBT ARC switch, then you can select HDMI ARC audio, HDBT ARC audio, SOURCE audio or Mute at the drop box (please see the picture 1). The HDMI ARC audio signal is from HDMI display device, the HDBT ARC audio signal is from HDBaseT receiver's display device and the SOURCE audio signal is from HDMI source device. If you select Mute option, the coaxial audio port won't have voice output. For example, if you select "HDMI ARC Audio" option at the drop box on the OUTPUT 1 frame, the coaxial 1 audio port signal at the Matrix is from HDMI 1 display device.
Note: The other OUTPUT audio ports have similar to function for the OUTPUT 1.

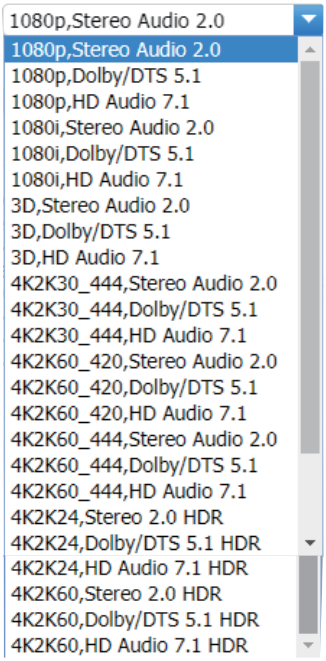
Receiver page



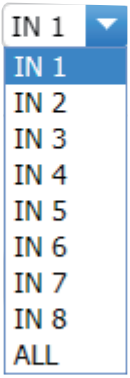
Bypass: When you select "BYPASS" option, the resolution of the source device will bypass to the display device of the HDBaseT receiver.
SCALE: When you select "SCALE" option, the resolutioin of the source device with 4K60 / 4K30 will downscale to 1080p60 / 1080P30 to the display device of the HDBaseT receiver.
AUTO: When you select "AUTO" option, the resolution of the source device will send matching the best resolution to the display device of the HDBaseT receiver.

EDID page

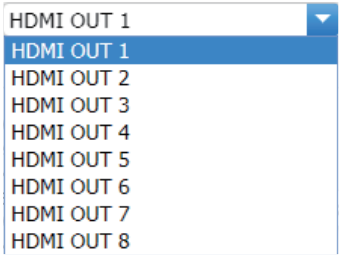




picture 2



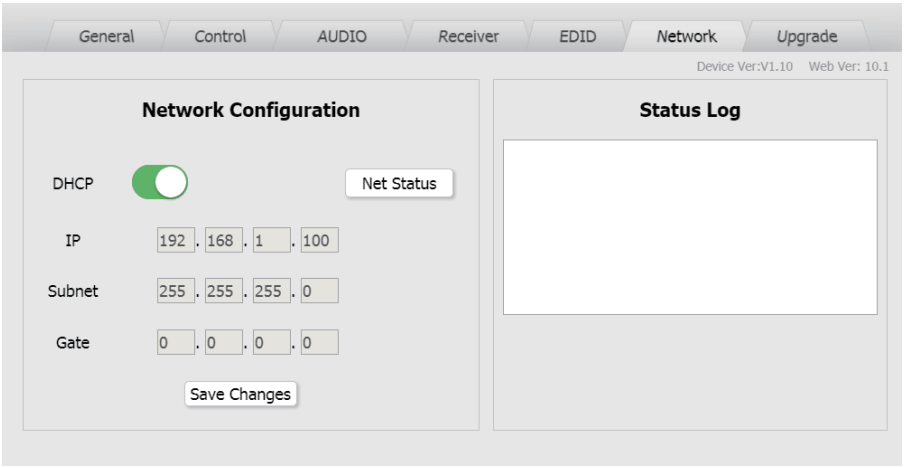
picture 3



picture 4

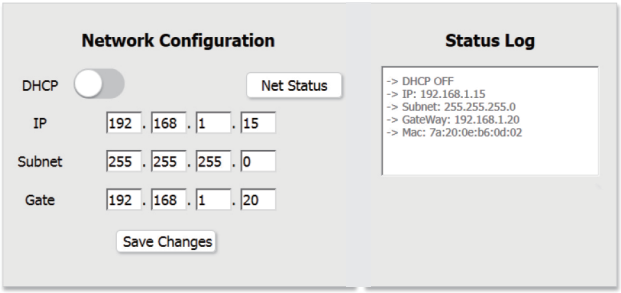
Set EDID Mode: You will see the EDID mode list and input port frame when you click the blue arrow area. Please see Picture 2 and Picture 3. You can select EDID mode to input source. Then click the “Set” button to confirm this operation.
Copy EDID From: You will see the HDMI output port and input port frame when you click the blue arrow area. Please see Picture 4 and Picture 3. You can select HDMI OUTPUT port to input source. Then click the “Set” button. At this time, the Matrix will copy the output display device’s EDID to the input soure device.
Refresh button: Clicking the “Refresh” button will display currently each input source EDID status.

Network page



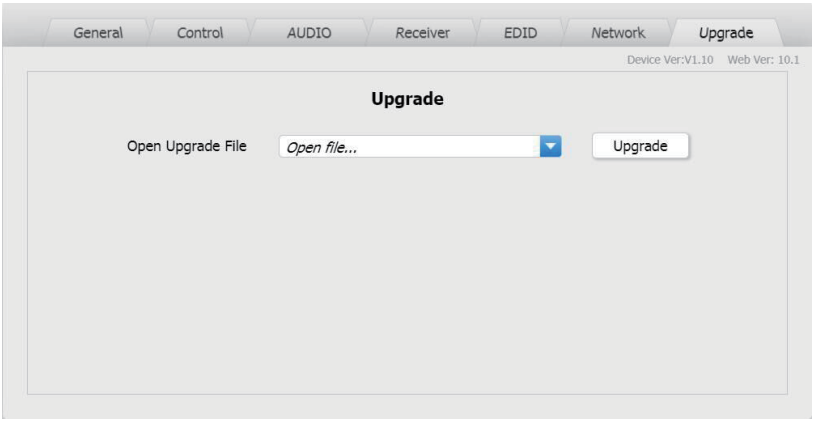
Network Configuration
◆ In DHCP open status:
DHCP switch: Obtian automatically the network configuration information, including IP, Subnet and Gate address.
◆ In DHCP close status:
DHCP switch: If the DHCP switch has been closed, you can set IP, Subnet, Gate address. You must pay attention to the Gate address and the IP address in the same network segment. IP address and Gate address can not the same in the last address. You need not to change the Subnet address. In this moment, click the “Save Changes” button to save current status information. For example, please check the picture 5.

Note: If you have set a new IP address and click the “Save Changes” button. You have changed the IP address, and you can continue use Web GUI function. But next time you connect Web GUI, you need to check current the IP address on the front panel. The IP address will recover default 192.168.1.100 when the product is set factory default status.
Net Status button: Clicking this button will refresh currently network configuration information to display in Status Log.
Status Log: Display the Net configuration information.



Picture 5

Upgrade page

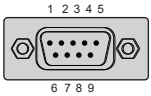


Upgrade: Select bin. upgrade file, then click the “Upgrade” button to upgrade. At this time, you will see a upgrade progress. The upgrade has finished when the upgrade progress up to 100%.
Notice: This Upgrade port can upgrade MCU and sii9396 software.

12. ASCII control command

The product also supports ASCII control. You need to a serial cable about RS-232 male head with DB9 transfer USB male head. The RS-232 head of the serial cable is connected the RS-232 control port with DB 9 at the rear of the Matrix, and the USB head of the serial cable is connected a PC. Open any of a Serial Command tool on PC such as “Docklight” to send command to control the Matrix.

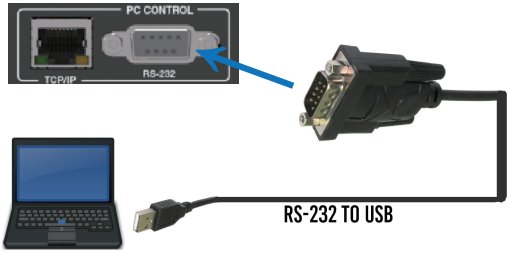
The fellowing shows RS-232 pin’s definition and connection way.



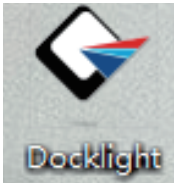
9-Pin male DIN interface

Pin’s definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receiver Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

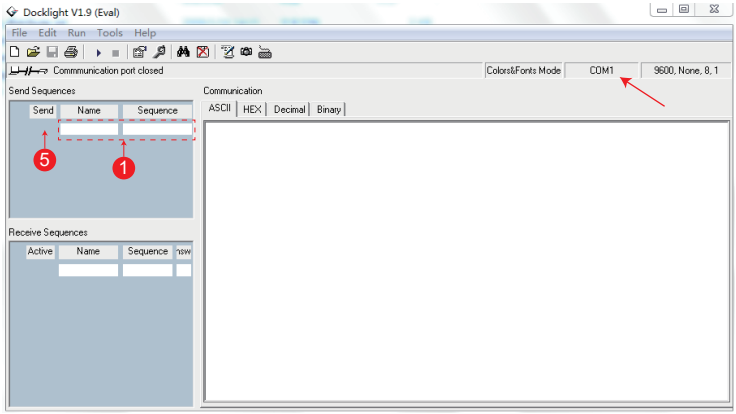


Double click the “Docklight” shortcut icon. Please see the following picture 1.

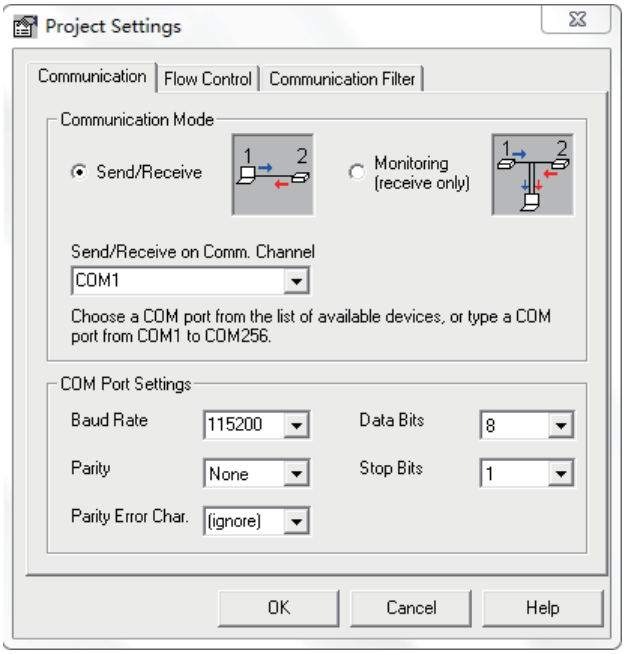


Picture 1

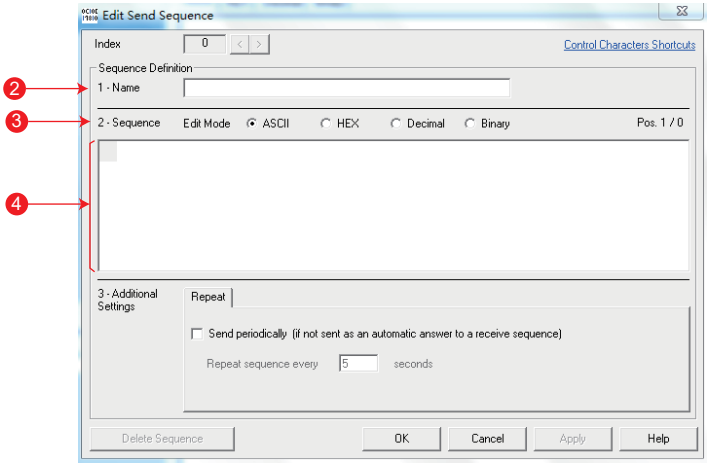
You will see the following page.



Click the “COM” area, there will be a “Project Settings” page. Choose the COM port to connect the software, and you need to setting the Baud Rate, Data Bits, Parity, Stop Bits and then click the “OK” button. Please see the following page.



Double click the “label 1” blank area. You will see the following page. At “label 2”, you can explain sequence definition. At “label 3”, you need to choose the sequence mode. At “label 4”, you can input the RS-232 command of the product. Then click the “OK” button.



Finally, you need to click “label 5” button to send the command.

The ASCII code list about the product shows as below.

ASCII Command			
Serial port protocol. Baud rate: 115200, Data bits: 8bit, Stop bits:1, Check bit: 0			
x - Parameter 1 y - Parameter 2 ! - Delimiter			
RS-232 Command	**Function description**	**Feedback**	**Default Setting**
Power			
s power on!	power the unit on	power on	the unit is power on
s power off!	power the unit off	power off	
r power!	Get current power state	power on	
s rboot!	reboot the unit	reboot	
System Setup			
s beep on!	Enable buzzer function	beep on	beep on
s beep off!	Disable buzzer function	beep off	
r beep!	Get the status of the buzzer	beep on	
s lock on!	Lock the buttons of the front panel	lock on	
s lock off!	Unlock the buttons of the front panel	lock off	lock off
r lock!	Get the buttons lock or unlock status of the front panel	lock off	
s factory reset!	Restore to factory settings	Restore factory settings	
r type!	Query matrix model	HDM-B88H70P	

r version!	Query software version	V1.10 HDMI(1): V00.05.0b HDMI(2): V00.05.0b HDMI(3): V00.05.0b HDMI(4): V00.05.0b HDMI(5): V00.05.0b HDMI(6): V00.05.0b HDMI(7): V00.05.0b HDMI(8): V00.05.0b HDBT(1): V00.05.0b HDBT(2): V00.05.0b HDBT(3): V00.05.0b HDBT(4): V00.05.0b HDBT(5): V00.05.0b HDBT(6): V00.05.0b HDBT(7): V00.05.0b HDBT(8): V00.05.0bv	
r status!	Query the state of the unit	power on V1.10 HDM-B88H70P AV 1 -> 1 AV 2 -> 2 AV 3 -> 3 AV 4 -> 4 AV 5 -> 5 AV 6 -> 6 AV 7 -> 7 AV 8 -> 8 beep off lock off ip 0.0.0.0 mac 00-00-00-00-00-00 port 8000	
s lcd backlight off!	Set the LCD screen backlight works in normal mode, after a certain time to off automatically	lcd backlight off	lcd backlight off
s lcd backlight on!	Set the LCD screen backlight always on	lcd backlight on	
r lcd backlight mode!	Get the control mode of LCD screen backlight	lcd backlight on	
s lcd time x!	Set the on time of LCD screen backlight, x=10~255	lcd auto close 30s	lcd auto close 30s
r lcd time!	Get the on time of LCD screen backlight	lcd auto close 30s	
s logo1 ********!	Set the logo name displayed on the first line of LCD screen,the max character is 16	logo1: Matrix Swtich	Matrix Swtich
s logo2 ********!	Set the logo name displayed on the second line of LCD screen,the max character is 16	logo1: HDM-B88H70P	HDM-B88H70P
s save x!	Save switch routing scenario to group x，x=1~10	save to group 1	
s recall x!	Recall saved group x scenario，x=1~10	recall from group 1	
s clear x!	Clear stored group x scenario,x=1~10	clear group 1	
Routing Setup			
s x av y!	Set input x to output y，x=1~8, y=1~8	AV 1 -> 2	
s x all!	Switch input x to all outputs，x=1~8	1 to all	
s ptp!	Switch input 1 to output 1, input 2 to output 2 …	ptp	ptp
r out y!	Get output port route to which input port, y=1~8	AV 1 ->2	
r all out!	Get all output ports routing status	AV x -> 1 AV x -> 2 ..... AV x -> 7 AV x -> 8	

r link in x!	Get input port HDMI status, x=1~8	HDMI IN1: connect	
r link in all!	Get all input ports HDMI status	HDMI IN1: connect HDMI IN2: connect . . HDMI IN7: connect HDMI IN8: connect	
r link out y!	Get output port HDMI status, y=1~8	HDMI OUT1: connect HDBT OUT1: connect	
r link out all!	Get all output ports HDMI status	HDMI OUT1: connect HDBT OUT1: connect ..... HDMI OUT8: connect HDBT OUT8: connect	
EDID Setup			
r internal edid!	Get all internal EDID information of unit supported	1,1080p,Stereo Audio 2.0 2,1080p,Dolby/DTS 5.1 3,1080p,HD Audio 7.1 4,1080i,Stereo Audio 2.0 5,1080i,Dolby/DTS 5.1 6,1080i,HD Audio 7.1 7,3D,Stereo Audio 2.0 8,3D,Dolby/DTS 5.1 9,3D,HD Audio 7.1 10,4K2K30_444,Stereo Audio 2.0 11,4K2K30_444,Dolby/DTS 5.1 12,4K2K30_444,HD Audio 7.1 13,4K2K60_420,Stereo Audio 2.0 14,4K2K60_420,Dolby/DTS 5.1 15,4K2K60_420,HD Audio 7.1 16,4K2K60_444,Stereo Audio 2.0 17,4K2K60_444,Dolby/DTS 5.1 18,4K2K60_444,HD Audio 7.1 19,4K2K24,Stereo 2.0 HDR 20,4K2K24,Dolby/DTS 5.1 HDR 21,4K2K24,HD Audio 7.1 HDR 22,4K2K60,Stereo 2.0 HDR 23,4K2K60,Dolby/DTS 5.1 HDR 24,4K2K60,HD Audio 7.1 HDR	
s edid x c y!	Copy output y EDID to input x port, x=1~8,y=1~8	copy edid from output 2 to input 1	
s edid x d y!	Set input x EDID to internal EDID y,x=1~8,y=1~24	IN1:4K2K30_444,Stereo Audio 2.0	
s edid all c y!	Copy output y EDID to all input ports, y=1~8	copy edid from output1 to all inputs	
s edid all d y!	Set all input ports EDID to internal EDID y, x=1~8,y=1~24	ALL IN: 4K2K60,HD Audio 7.1 HDR	
s edid default!	Set default EDID to all input ports (default EDID is 4K2K60_444,Stereo Audio 2.0)	ALL IN: 4K2K60_444, Stereo Audio 2.0	
r display edid x!	Get EDID data of TV be connected to HDMI output port, x=1~8	EDID : 00 FF FF FF FF FF FF 00 ……	
r hdbt display edid x!	Get EDID data of TV be connected to HDBT RX output port, x=1~8	EDID : 00 FF FF FF FF FF FF 00 ……	
r edid x!	Get input port EDID status, x=1~8	IN1: 4K2K60_444, Stereo Audio 2.0	
r all edid!	Get all input ports EDID status	IN1: 4K2K60_444,Stereo Audio 2.0 IN2: 4K2K60_444,Stereo Audio 2.0 IN3: 4K2K60_444,Stereo Audio 2.0 IN4: 4K2K60_444,Stereo Audio 2.0 IN5: 4K2K60_444,Stereo Audio 2.0 IN6: 4K2K60_444,Stereo Audio 2.0 IN7: 4K2K60_444,Stereo Audio 2.0 IN8: 4K2K60_444,Stereo Audio 2.0	

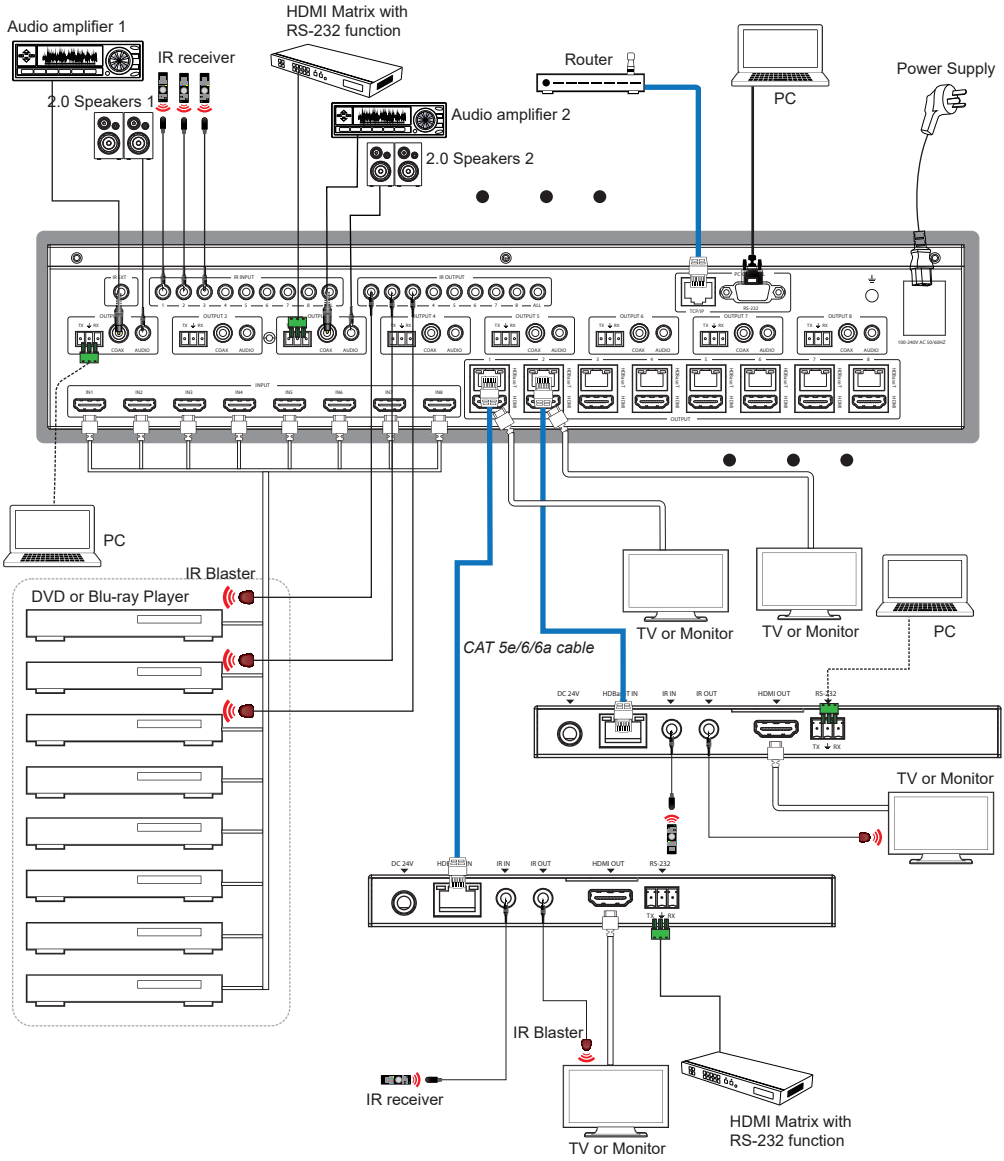
HDCP Setup			
s x hdcp on!	Enable output port HDCP, x=1~8	out 1 hdcp on	
s x hdcp off!	Disable output port HDCP, x=1~8	out 1 hdcp off	
s x hdcp auto!	Set output port HDCP follows input port HDCP	out 1 hdcp auto	
s all hdcp on!	Enable all output ports HDCP	all out hdcp on	
s all hdcp off!	Disable all output ports HDCP	all out hdcp off	
s all hdcp auto!	Set all output ports HDCP follow their corresponding input port HDCP	all out hdcp auto	all out hdcp auto
r hdcp in x!	Get input port HDCP status, x=1~8	in 1 hdcp on	
r hdcp out y!	Get output port HDCP status, y=1~8	hdmi out1 hdcp on hdbt out 1 hdcp on	
r hdcp all in!	Get all input ports HDCP status	in 1 hdcp on in 2 hdcp on in 3 hdcp on in 4 hdcp on in 5 hdcp on in 6 hdcp on in 7 hdcp on in 8 hdcp on	
r hdcp all out!	Get all output ports HDCP status	hdmi out 1 hdcp on hdbt out 1 hdcp on hdmi out 2 hdcp on hdbt out 2 hdcp on hdmi out 3 hdcp on hdbt out 3 hdcp on hdmi out 4 hdcp on hdbt out 4 hdcp on hdmi out 5 hdcp on hdbt out 5 hdcp on hdmi out 6 hdcp on hdbt out 6 hdcp on hdmi out 7 hdcp on hdbt out 7 hdcp on hdmi out 8 hdcp on hdbt out 8 hdcp on	
Scaler Setup			
s x down scaler!	Set certain HDBT RX works in downscaler 1080P mode, x=1~8	output 1 down scaler	
s all down scaler!	Set all HDBT RXs work in downscaler 1080P mode	output all down scaler	
s x bypass mode!	Set certain HDBT RX works in video bypass mode, x=1~8	output 1 bypass mode	
s all bypass mode!	Set all HDBT RXs work in video bypass mode	output all bypass mode	output all bypass mode
s x auto mode!	Set certain HDBT RX works in auto mode, x=1~8	output 1 auto mode	
s all auto mode!	Set all HDBT RXs work in auto mode	output all auto mode	
r scaler mode x!	Get the scaler mode of certain HDBT RX, x=1~8	output 1 bypass mode	
r all scaler mode!	Get the scaler mode of all HDBT RXs	output 1 bypass mode output 2 bypass mode output 3 bypass mode output 4 bypass mode output 5 bypass mode output 6 bypass mode output 7 bypass mode output 8 bypass mode	

Audio Setup			
s x hdmi arc on!	Turn on ARC of HDMI output, x=1~8	output 1 audio from hdmi arc,hdmi arc on	
s x hdbt arc on!	Turn on ARC of HDBToutput, x=1~8	output 1 audio from hdbt arc,hdbt arc on	
s x hdmi arc off!	Turn off ARC of HDMI output, x=1~8	output 1 audio from source audio,hdmi arc off	
s x hdbt arc off!	Turn off ARC of HDBT output, x=1~8	output 1 audio from source audio,hdbt arc off	
s all hdmi arc on!	Turn on ARC of all HDMI outputs	output 1 audio from hdmi arc,hdmi arc on output 2 audio from hdmi arc,hdmi arc on output 3 audio from hdmi arc,hdmi arc on output 4 audio from hdmi arc,hdmi arc on output 5 audio from hdmi arc,hdmi arc on output 6 audio from hdmi arc,hdmi arc on output 7 audio from hdmi arc,hdmi arc on output 8 audio from hdmi arc,hdmi arc on	
s all hdbt arc on!	Turn on ARC of all HDBT outputs	output 1 from hdbt arc, hdbt arc on output 2 from hdbt arc, hdbt arc on output 3 from hdbt arc, hdbt arc on output 4 from hdbt arc, hdbt arc on output 5 from hdbt arc, hdbt arc on output 6 from hdbt arc, hdbt arc on output 7 from hdbt arc, hdbt arc on output 8 from hdbt arc, hdbt arc on	
s all hdmi arc off!	Turn off ARC of all HDMI outputs	output 1 audio from hdbt arc,hdmi arc off output 2 audio from hdbt arc,hdmi arc off output 3 audio from hdbt arc,hdmi arc off output 4 audio from hdbt arc,hdmi arc off output 5 audio from hdbt arc,hdmi arc off output 6 audio from hdbt arc,hdmi arc off output 7 audio from hdbt arc,hdmi arc off output 8 audio from hdbt arc,hdmi arc off	
s all hdbt arc off!	Turn off arc of all HDBT outputs	output 1 audio from source audio,hdbt arc off output 2 audio from source audio,hdbt arc off output 3 audio from source audio,hdbt arc off output 4 audio from source audio,hdbt arc off output 5 audio from source audio,hdbt arc off output 6 audio from source audio,hdbt arc off output 7 audio from source audio,hdbt arc off output 8 audio from source audio,hdbt arc off	

r arc x!	Get ARC state of output, x=1-8	output 1 from source audio, hdmi arc off output 1 from source audio, hdbt arc off	
r all arc!	Get ARC state of all outputs	output 1 from source audio, hdmi arc off output 1 from source audio, hdbt arc off output 2 from source audio, hdmi arc off output 2 from source audio, hdbt arc off output 3 from source audio, hdmi arc off output 3 from source audio, hdbt arc off output 4 from source audio, hdmi arc off output 4 from source audio, hdbt arc off output 5 from source audio, hdmi arc off output 5 from source audio, hdbt arc off output 6 from source audio, hdmi arc off output 6 from source audio, hdbt arc off output 7 from source audio, hdmi arc off output 7 from source audio, hdbt arc off output 8 from source audio, hdmi arc off output 8 from source audio, hdbt arc off	
s x mute on!	Mute the coaxial audio output x , x=1~8	output 1 audio mute on	
s all mute on!	Mute all coaxial audio outputs	output 1 audio mute on output 2 audio mute on output 3 audio mute on output 4 audio mute on output 5 audio mute on output 6 audio mute on output 7 audio mute on output 8 audio mute on	
s x mute off!	unmute the coaxial audio output x , x=1~8	output 1 audio mute off	
s all mute off!	unmute all coaxial audio outputs	output 1 audio mute off output 2 audio mute off output 3 audio mute off output 4 audio mute off output 5 audio mute off output 6 audio mute off output 7 audio mute off output 8 audio mute off	
r mute x!	Get the state of coaxial audio output x, x=1~8	output 1 audio mute off	
r all mute!	Get the state of all coaxial audio outputs	output 1 audio mute off output 2 audio mute off output 3 audio mute off output 4 audio mute off output 5 audio mute off output 6 audio mute off output 7 audio mute off output 8 audio mute off	

NETWORK SETTINGS			
s dhcp off!	Set network module to static IP	ip mode Static	
s dhcp on!	Set network module to DHCP	ip mode DHCP	ip mode DHCP
r dhcp!	Get dhcp status of the network module	ip mode DHCP	
s ip addr XXX.XXX.XXX.XXX!	Set the IP address	192.168.1.100	
r ip addr!	Get the IP address	192.168.1.100	
s subnet XXX.XXX.XXX.XXX!	Set the subnet mask	255.255.255.0	
r subnet!	Get the subnet mask	255.255.255.0	
s gateway XXX.XXX.XXX.XXX!	Set the gateway	192.168.1.1	
r gateway!	Get the gateway	192.168.1.1	
s port x!	Set network port number	8000	
r port!	Get network port number	8000	
r mac addr!	Get the MAC address	E8-6A-64-42-BA-5D	
s network enable!	When configuring network modules,execute all the commands you need firstly then execute this command to reboot network modules	network applying…	

13. Application Example



14. FAQ

1. **Q:** Does this product require an HDMI and CAT line length for the connection interface?
A: According to HDMI line length test. When the resoluiton is 1080p@60Hz 12 bit, and the HDMI input / output line length up to 15 meters. When the resoluiton is 4K@24Hz, and the HDMI input / output line length up to 10 meters. When the resoluiton is 4K@60Hz, and the HDMI input / output line length up to 8 meters.

The use of “Premium High Speed HDMI” cable is highly recommended.

When the resolution is 1080p@60Hz 12 bit / 4K@60Hz YUV 4:4:4, and the CAT 5e/6/6a cable extends distance up to 70 meters / 40 meters.

IR remote supports distance for 0~7 meters and angle is plus-minus 45 degrees.

If you have any questions about the product, please contact to our sales agent. We are happy to sevice for you. Thanks!