VigilLink

VLMX-431HT70

4x3+1 HDMI 2.0 Matrix over HDBaseT 70m 18Gbps

User Manual

VER 1.02

Thank you for purchasing this product

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

A surge protection device recommended

This product contains sensitive electrical components that electrical spikes may damage, surges, electric shocks, lightning strikes, etc. The use of surge protection systems is highly recommended to protect and extend the life of your equipment.

Table of Contents

1. Introduction

The 4x3+1 HDBaseT Matrix supports video transmission (up to 4K2K@ 60Hz, 18Gbps, HDCP 2.2) and multi-channel digital audio from 4 HDMI sources to 3 HDBaseT-Lite outputs and 1 independent HDMI 2.0 output. It supports audio de-embedding from any one of 4 outputs (configurable). Any source can be selected via an on-panel button, IR remote control, RS-232, LAN, or Web GUI.

2. Features

- ☆ HDMI 2.0b, HDCP 2.2, and HDCP 1.4 compliant
- ☆ Up to 4K2K@60Hz (4:4:4) on all HDMI and HDBaseT ports
- ☆ Supports pass-through audio up to 7.1 channels of High Definition audio (LPCM, Dolby TrueHD, and DTS-HD Master Audio)
- ☆ Digital and analog audio de-embedding from any one of 4 outputs (configurable)
- ☆ HDR and smart EDID management supported
- ☆ 24V PoC on all HDBaseT ports
- ☆ Control is via on-panel Button, IR, RS-232, LAN, and Web UI
- ☆ Transmission distance: ※Over Cat6 cable
  70 meters: 1080P @60Hz36bit;
  40 meters: 1080P @60Hz@48bit; 1080P @120Hz@24bit;
  4K2K@50/60Hz (YUV420), 4K2K@50/60Hz (YUV444).

3. Package Contents

① 1× 4×4 HDMI 18Gbps over HDBaseT Matrix
② 3× HDBaseT receivers
③ 2× Mounting Ears (Matrix)
④ 6× Mounting Ears (Receiver)
⑤ 4× Phoenix terminals (male)
⑥ 8× Wideband IR Receiver cables
⑦ 8× Wideband IR Blaster cables
⑧ 1× 24V/2.7A Locking Power Adaptor
⑨ 1× IR Remote control
⑩ 1× User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 and HDCP 1.4
Video Bandwidth	Up to 18Gbps
Video Resolution	Up to 4K2K@50/60Hz(YUV4:4:4), 4K2K@30Hz, 1080P@120Hz and 1080P 3D@60Hz
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2
Color Depth	10-bit, 12-bit
HDMI Audio Formats (Pass-through)	LPCM2/5.1/7.1CH, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X
ESD Protection	Human-body Model: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connections	
Transmitter	Input Ports: 4×HDMI Type A (19-pin female) 6×IR IN (3.5mm Stereo Mini-jack) 1×RS-232 (Phoenix jack) 1×LAN (RJ45) Output Ports: 1×HDMI Type A (19-pin female) 3×HDBaseT (RJ45) 1×SPDIF (Optical) 1×L/R (3.5mm Stereo Mini-jack) 5×IR OUT (3.5mm Stereo Mini-jack)
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] 1×RS-232 [Phoenix connector]
Mechanical	
Chassis Material	Metal
Silkscreen Color	Black
Dimensions	TX: 360mm (W)×160mm (D)×35mm (H) RX: 115mm(W)×65mm(D)×17mm(H)
Weight	TX: 1.9kg, RX: 206g
Power Supply	DC 24V/2.7A
Power Consumption	35W(max) / 1W （Standby)

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-Condensation)

5. Operation Controls and Functions

5.1 Front panel
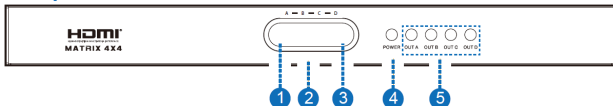
Number	Name	Function description
1	LED	When a device is in standby mode, the LED light is red. LED is blanking when the device is working normally.
2	Nixie tube	It displays the output port corresponding input source.
3	IR	IR receives the window.
4	POWER button	Power the on/off button.
5	OUTPUT button	A/B/C/D output channel button.

5.2 Rear panel
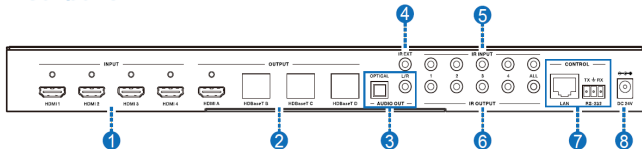
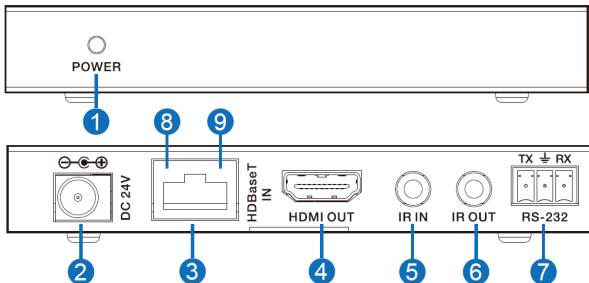| Number	Name		Function description
1	HDMI INPUT		Connect to the HDMI source device, such as a DVDplayer or Set-top box.
2	OUTPUT	HDMI	Connect to the HDMI display devices, such as TVs or Monitors.
		HDBaseT	Connect to HDBaseT receiver comes from the same package. Don't connect to a projector directly with that built-in HDBaseT input port since 24V PoC may destroy this projector.

3	AUDIO OUTPUT	OPTICAL	Digital audio de-embedding output.
		L/R	Analog L/R audio de-embedding output.
4	IR EXT		If the front IR sensor of the unit is obstructed or installed in a closed area out of the infrared lineof sight, the IR receiver included can be inserted into the IR EXT port at the rear to extend the IR sensor range and enable local of the Matrix.
5	IR INPUT		IR receiver port, connect an IR receiver cable.
6	IR OUTPUT		IR blaster port, connect an IR blaster cable.
7	CONTROL	LAN	Connect to an active Ethernet link with an RJ45 terminated cable.
		RS-232	Connect to a PC or control system for control viaa Phoenix terminal to transmit command.
8	Power port		Plug the 12V DC power supply into the unit and connect the adapter to the AC wall outlet.

Notice: **The following is the EDID schema table.**

EDID mode	EDID description
1	720p,Stereo Audio 2.0
2	1080p,Stereo Audio 2.0
3	1080p,Dolby/DTS 5.1
4	1080p,HD Audio 7.1
5	1080i,Stereo Audio 2.0
6	1080i,Dolby/DTS 5.1
7	1080i,HD Audio 7.1
8	3D, Stereo Audio 2.0
9	3D,Dolby/DTS 5.1
10	3D, HD Audio 7.1
11	4K2K30_444,Stereo Audio 2.0
12	4K2K30_444,Dolby/DTS 5.1
13	4K2K30_444, HD Audio 7.1
14	4K2K60_420,Stereo Audio 2.0
15	4K2K60_420,Dolby/DTS 5.1

16	4K2K60_420, HD Audio 7.1
17	4K2K60_444,Stereo Audio 2.0
18	4K2K60_444,Dolby/DTS 5.1
19	4K2K60_444, HD Audio 7.1

6. HDBaseT Receiver Panel

Number	Name	Function description
1	POWER	This LED illuminates when the device is connected to the power supply.
2	DC 24V	Plug the 24V DC power supply into the unit. (If the device connects to the Matrix, the receiver doesn'tneed a local power supply due to PoC from the Matrix.)
3	HDBaseT IN	Standard HDBaseT signal input port. Connect to Matrix HDBaseT output with a UTP cable.
4	HDMI OUT	HDMI output port. This slot is where you connect the HDTV or monitor with an HDMI cable.
5	IR IN	Channel 1 IR Receiver. Connect with Wideband IR Rx.
6	IR OUT	Channel 2 IR Transmitter. Connect with Wideband IR Tx.
7	RS-232	Connect to a PC or control system with phoenix jack for transmission of RS-232 commands.

|		
8	Connection Signal Indicator Lamp	※Illuminate: The Transmitter and Receiver are in good connection status. ※Flashing: The Transmitter and Receiver are in poor connection status. ※Dark: The Transmitter and Receiver are not connected.
9	Data Signal Indicator Lamp	※Illuminate: The HDMI signal with HDCP. ※Flashing: The HDMI signal without HDCP. ※Dark: No HDMI signal.

7. IR Control system (IR Call-back of Matrix and Source Devices)
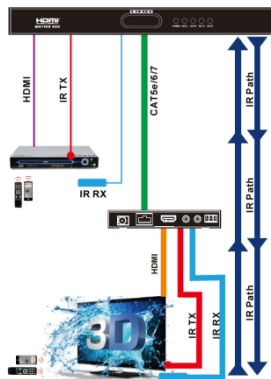
The Matrix is not only a switcher and extender of multiple HDMI signals to multiple HDMI receivers located remotely, but it also passes IR control signals through the IR call-back system to the matrix and HDMI sources for full, independent control of all connected inputs from output locations.

Two-way IR Call-back between Matrix, sources, and displays from multiple locations.

A vital feature of the Matrix is discrete IR control of the Matrix, sources, and displays from any location – so inputs at the matrix end can be controlled at a display location, and displays can be controlled at the matrix location. This is accomplished by placing a series of IR Emitters on devices to control IR Receivers at all locations you wish to control from to enable the IR signal to travel both ways via the single Cat5e/6/7 cable.
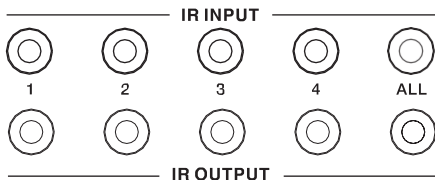
IR control is divided into two kinds of control ways as below.

Insert the 3.5mm IR receiver cable into the IR INPUT ports at the rear of the Matrix. At the same time, insert the 3.5mm IR blaster cable into the IR OUTPUTports at the back of the Matrix. At the display, the user connects the HDBT Receiver

device at the matrix HDBaseT ports. Afterward, insert the 3.5mm IR receiver cable and IR blaster cable into the HDBT Receiver device.

① At Matrix end: When the user controls the output device by remote control.

The matrix IR INPUT and the HDBT IR output match. The way of IR control is following a video switch to change. The HDMI source is switched to the HDBT receiver display device output, and the IR control will switch to the following output and select the corresponding input source.
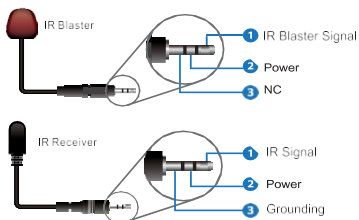
② At display end: The Matrix has one location HDMI output and three HDBT outputs. The location HDMI output has no IR control function. The three HDBT outputs connect to the HDBT receiver. The HDBT IR INPUT and the matrix IR OUPTU match. The way of IR control is following a video switch to change. The mean is that the output selects the corresponding input source, and the IR control will switch to the following output and selects the connected input source.

Attention: The Matrix has one location HDMI output. If the HDMI input source is switched to the one location HDMI output, the HDMI output end cannot control the Matrix through IR.
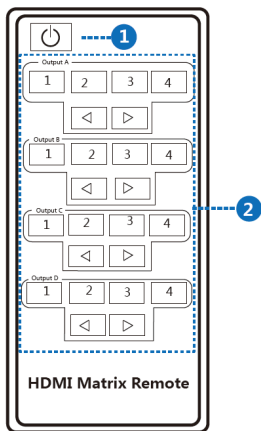
The function of the IR "ALL" port is to control about one to all ports.

IR Pin Definition

IR Receiver and Blaster pin's definition as below:

IR RECEIVER   IR BLASTER

IR Blaster
- 1 IR Blaster Signal
- 2 Power
- 3 NC

IR Receiver
- 1 IR Signal
- 2 Power
- 3 Grounding

8. Remote control

HDMI Matrix Remote

① Press this button to open the power of the Matrix or set it as a standby status.

② Press these keys to select the output A, output B, output C, or output D for output corresponding 1, 2, 3, or 4 input sources.

9. Web GUI User Guide

The Matrix can be controlled via Web GUI through LAN port. You must know the current Matrix IP address. The static IP address is 192.168.1.100. You can connect PC Web GUI through a dynamic IP address. You can get the IP address in this unit via the PC Controller. Firstly, open Matrix PC Controller software on the following page:
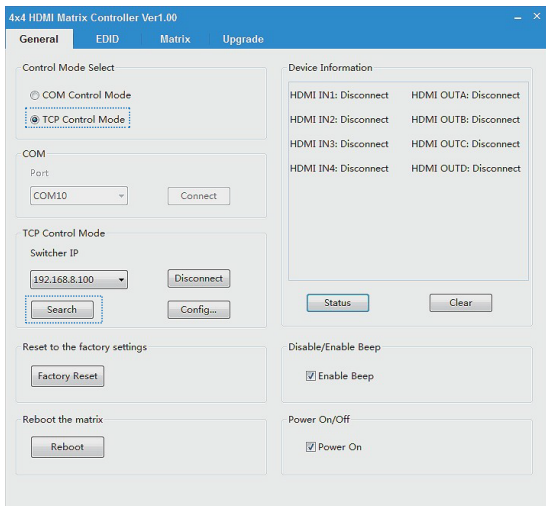
Then select the "TCP Control Mode" port, and click the "Search" button. At this moment, you can get your current IP address. You can set the IP address to your PC/laptop/mobile Internet Explorer and click "Search" to enter the Web GUI page. The Web GUI likes below:

General page
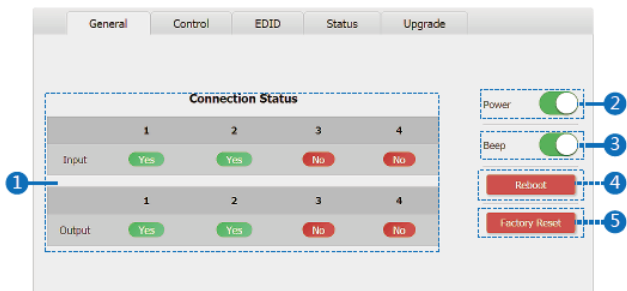
① Display currently the Matrix input and output port status. The "yes" have a connected input or output source, and the "no" represents no connection.
② Power switch. The Matrix will work when opening this switch; otherwise, the Matrix will stand by.
③ Beep switch. Open this switch, and press the Matrix on-panel button will have a voice. Close this switch; it will mute.
④ Click this button will reboot the device.
⑤ Click this button will set it to factory reset.

Control page

① Select the input source to the output port.
② Select the output port audio.

EDID page
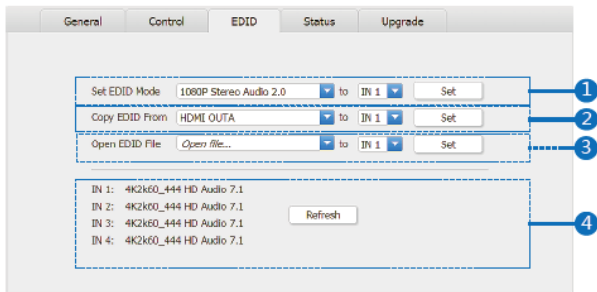
① Set EDID mode to the input source, then click the "Set" button.

② Copy EDID from the HDMI output port to the input source, then click the "Set" button.

③ Open the EDID file to the input source, then click the "Set" button.

④ Click the "Refresh" button to refresh the current EDID mode. It will display the present input source EDID mode status.

Status page

① Network Configuration
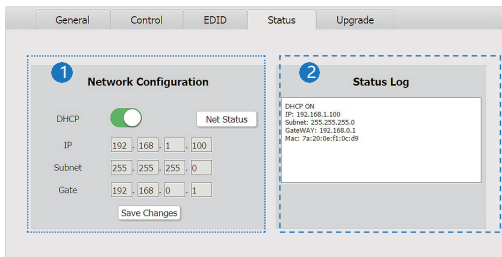
◆ In DHCP open status:

HDCP switch: Obtain the network configuration information, including IP address, Subnet, Gate. Then click the "Save Changes" button to save the DHCPstatus.

♦ In DHCP close status:
HDCP switch: If the DHCP switch has been closed, the user can set IP, Subnet, and Gate address. At this moment, click the "Save Change" button to save current status information. (Attention: If the user has set the IP address, click the "Save Change" button. At this moment, the user needs to set the IP address again to your PC/laptop/mobile Internet Explorer and click "Search" to enter the Web GUI page.)
Net Status button: Press this button to refresh the current network configurationinformation to display in the status log.
In this unit, the Mac address can check only; you cannot set it.

② Display the network configuration information.

Upgrade page
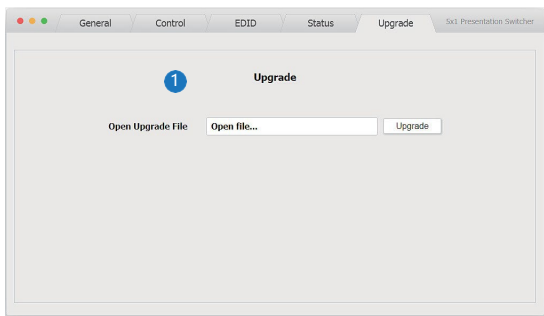
① Open the upgrade file to upgrade.

10. Application Example