

VLHDMIMAT4X4D

4K60 4x4 HDMI Matrix Switcher w/ 60M Extension



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Version: VLHDMIMAT4X4D KIT B1.1

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated by Sep, 2026. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheating.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Product Introduction

VLHDMIMAT4X4D KIT is a 4X4 HDMI Matrix Switcher extension kit, supports max 4K@60 4:4:4 for input and output. It includes 4pcs VLHDMIEXT60R for extension, support 60m extension@4K60Hz.

VLHDMIMAT4X4D KIT is a powerful product, support PoC power passthrough from TX to RX unit, no extra power PSU for RX is needed, makes the system more clean. It also supports auto downscale from 4K to 1080P by RX unit, to better compatible with more scenarios. Multi control ways supported, panel buttons control, GUI control and RS232 control supported, makes it suitable for Bars, meeting room systems and commercial applications.

1.1 Features

- 4 way in, 4 way out matrix, supports max 4K@60Hz 4:4:4.
- Support to connect 4 VLHDMIEXT60R to support 60m extension at 4K60.
- Support auto downscale by RX unit, from 4K to 1080p.
- Support PoC pass through from TX to RX.
- RS232 Control, WEB UI Control, Panel button Control available.

1.2 Packing List

- 1x VLHDMIMAT4X4D main unit
- 4x VLHDMIEXT60R unit
- 8x RX Mounting Ears with 8 Screws
- 2x TX Mounting Ears with 4 Screws
- 4x Plastic Cushions for main unit
- 1x 3pin terminal connector
- 1x DC 24V 1.5A PSU with a EU and UK standard adapter
- 1x User Manual

Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Specification

Items	TX(VLHDMIMAT4X4D)	RX(VLHDMIEXT60R)
Video Input		
Input Resolution	Up to 4K@60Hz 4:4:4	
Input Connector	(4) HDMI 2.0	(4) RJ45
Bandwidth	18Gbps	
Video Output		
Output	Up to 4K@60Hz 4:4:4	
Output Connector	(4) HDMI 2.0; (4) RJ45	(4) HDMI 2.0;
HDCP Version	2.2/1.4 compliant	
Control		
Unit Control	Button Control, GUI Control, Commands Control.	Commands Control.
General		
Bandwidth	18Gbps	
Operation Temperature	-5 ~ +55℃	
Storage Temperature	-25 ~ +70℃	
Relative Humility	10% - 90%	
Power Supply	DC 24V 1.5A	DC 5V 1A (Exclude)
Power Consumption	Max 21.3W (including PoC power up 4 RXunit)	
Dimension (W*H*D)	344.0mm x 130.0mm x 23.0mm	38.0mm x 88.0mm x 18.0mm
Compliance	CE	

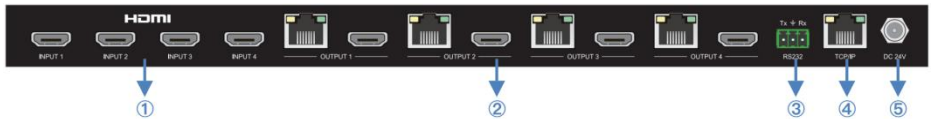
3. Panel Description

3.1 VLHDMIMAT4X4D Front Panel



- ① **Power LED:** 1x Power status indicator, it will illuminate blue when power on and illuminate red when in standby mode.
- ② **Panel Lock button:** 1x white button with a indicator by its left, Press and hold the button for 5s to lock/unlock front panel buttons, indicator illuminate blue when front panel locked.
- ③ **Output buttons:** 4x White buttons and 16x indicators, press buttons to switch input for the output and then the indicator will illuminate blue when switch to the input.

3.2 VLHDMIMAT4X4D Rear Panel



- ① **INPUT:** 4x HDMI ports to connect with source.
- ② **OUTPUT:** 4x HDMI ports to connect with sink for loop out.
4x RJ45 ports to connect with VLHDMIEXT60R for extension, max 60m.
- ③ **RS232:** 1x RS232 ports to connect with control PC for Serial control.
- ④ **TCP/IP:** 1x RJ45 connector, to connect with your control PC for Web control.
- ⑤ **DC 24V:** 1x DC connector to connect DC PSU to power unit.

3.3 VLHDMIEXT60R Panel description



Front Panel



Rear Panel

- ① **Display:** 1x HDMI port to connect with Sink.
- ② **DC 5V:** 1x USB-C port to connect **DC5V 1A** power supply. (exclude)
- ③ **CAT IN:** 1x RJ45 port to connect with TX cat out.

4. Panel Drawing

4.1 VLHDMIMAT4X4D Panel

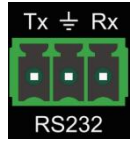


4.2 VLHDMIEXT60R Panel

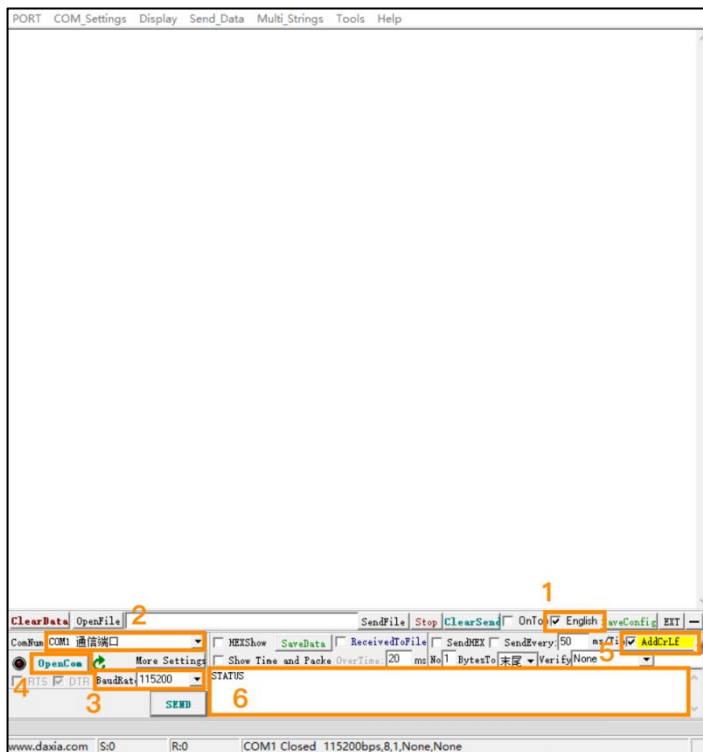


5. RS232 Control

VLHDMIMAT4X4D KIT was designed with a terminal connector on Chassis for Commands control. Please connect unit RS232 PORT with your control PC, using a RS232 to USB-A serial cable and then check the connected COMM port of your control PC.



We take “sscom” as an example, the icon of the tool is shown as below: Different Serial tools differs in settings, but wouldn’t affect the command responses. Below is the steps to configure sscom tool:



First: Tick the “English” selection tickbox to change the tool language to English.

Second: Select the COMM port you have connected in “ComNum” drop-down box.

Third: Set the baud-rate to **115200**, the other settings are set default to compatible with the unit, if need to change, please Press “COM_Settings” at the top of the page to

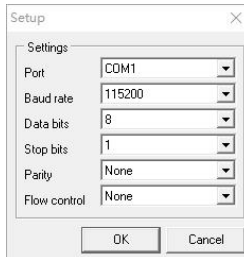
change serial settings.

Forth: Press "**OpenCom**" to enable the RS-232 Serial port.

Fifth: Tick the "**AddCrLf**" selection tickbox to set tool to default add a command ending Cr and LF when sending commands.

Sixth: Typing commands in the command area and press "**SEND**" button to send, and then to check commands response in above window.

Default Serial configure is as:

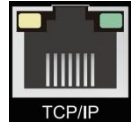


Supported Baud rate: 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200.

Note: If "AddCrLf" is not ticked, you will need to append a "r\n" at the end of the command when sending it, otherwise unit won't respond to the command, for example "STATUS\r\n".

6. Web UI Control

VLHDMIMAT4X4D KIT was designed with a TCP/IP port for GUI Control.
With GUI, user can operate all functions.



GUI connection:

Unit was set to DHCP mode by default, when connect unit with your control PC directly, you need to configure the IP address of the LAN port that connect with unit to the same subnet, then you can login unit GUI through default IP Address: 192.168.0.178

When your unit connected with a router or switch which support DHCP service, you need to connect the RS232 serial port with your control PC and query unit IP address first and then this IP address to login GUI.

If you set unit to Static IP manually, please use the configured IP address to login.

Instruction for Network Adapter Configuration on Windows.

- 1, Right-click Start Menu → Settings → Network & Internet → Status → Advanced network settings.
- 2, Select Change Network adapter configurations.
- 3, Double click the network that unit connected to activate network settings.
- 4, Click the "Properties" button.
- 5, Find the "TCP/IPv4" and double click the option to start configure the LAN port network configuration.
- 5, Choose "Use below IP address" and start to configure the LAN port that unit connected to the same subnet, for example:

IP address: 192.168.0.10

Subnet Mask: 255.255.255.0

- 6, Press "Save" button to apply the configurations.

6.1 Log in

For safety consideration, VLHDMIMAT4X4D KIT need to log in GUI to control unit.



it supports 2 kind of roles - Admin and Guest, differs in accessibility to system, Admin have full access to the system and can configure Guest access.

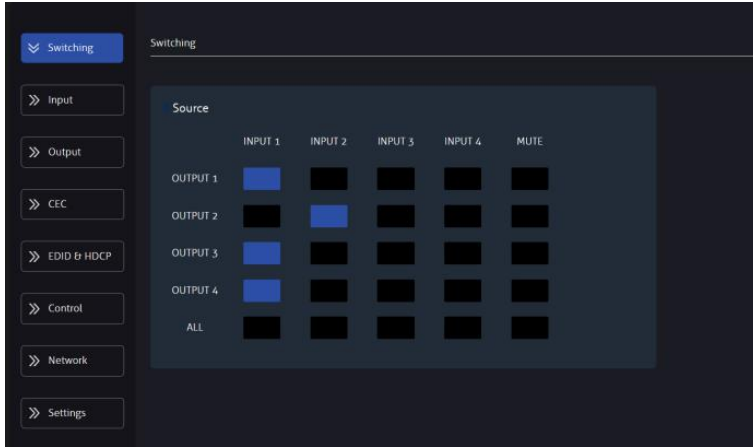
Default Guest access: Switching, Input, Output, CEC.

Default Admin User Name: **Admin**

Default Admin Password: **Admin**

Cautious: After the first time log in, system will ask to update the password for security consideration, please follow the system prompt to finish the process.

6.2 Switching



User can switch input and output in the Switching page.

HDMI OFF: when enabled system will disable the output signal.

ALL: When enabled system will switch all output to the same input or mute all output.

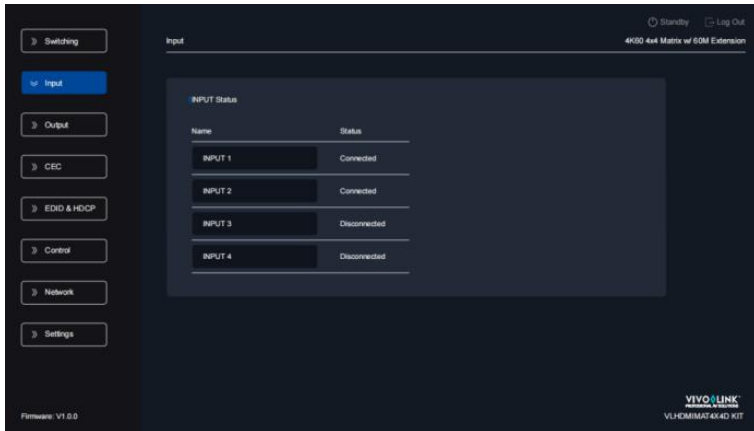
Standby: To enable standby mode, when in standby mode can click the button again to power on unit.

Log Out: Click to Log out GUI.

When the button shows blue, it means the input and output is routed.

6.3 Input

User can check four input status connected or disconnected and support to set user defined input name.



When set a user defined name, then system will sync the name to all related in GUI.

6.4 Output

User can manage the output settings in the Output page.

Output status: Support to set user defined output name, check the connection status and routing source

PoC over LAN: Unit support to passthrough power from Tx to Rx and support to manage separately for each output, here is to enable/disable the power passthrough and by default the PoC passthrough was enabled.

Output AV Mute: User can manage to mute Audio and Video output of HDMI loop-out and RX HDMI. By default it is disabled.

Output

Standby Log Out

4K60 4x4 Matrix w/ 60M Extension

OUTPUT Status

Name	OUTPUT Status	Source
OUTPUT 1	Connected	INPUT 1
OUTPUT 2	Connected	INPUT 2
OUTPUT 3	Disconnected	INPUT 3
OUTPUT 4	Disconnected	INPUT 4

PoC over LAN

OUTPUT 1 OFF ☒ ON

OUTPUT 2 OFF ☒ ON

OUTPUT 3 OFF ☒ ON

OUTPUT 4 OFF ☒ ON

Output AV Mute

☒ OFF ☐ OUTPUT 1 ☐ OUTPUT 2 ☐ OUTPUT 3 ☐ OUTPUT 4 ☐ ALL

Firmware: V1.0.0

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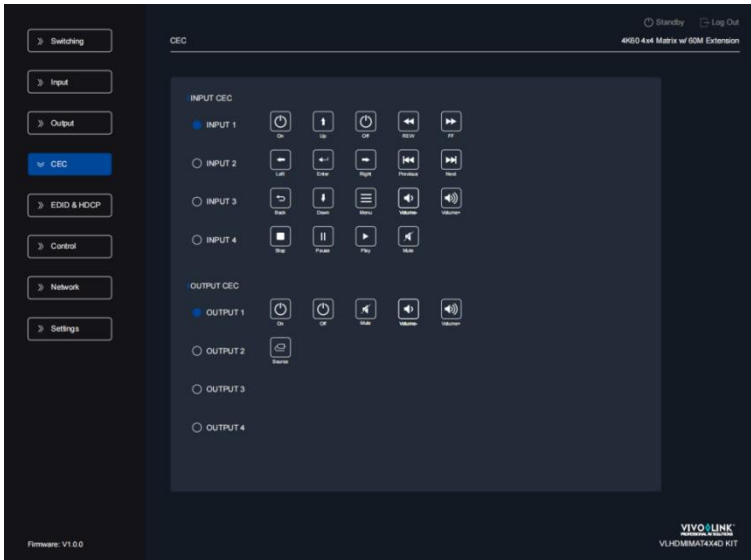
6.5 CEC

VLHDMIMAT4X4D KIT support CEC control through HDMI, which is a standard feature for users to control third party devices for example TV, Blu ray and so on.

For user's convenience, we designed a series of buttons according to the standard CEC protocol to control connected sink.

INPUT CEC: Click the preset CEC buttons to control chosen INPUT.

OUTPUT CEC: Click the preset CEC buttons to control chosen HDMI OUTPUT.



6.6 EDID and HDCP management

User can manage EDID and HDCP settings in this page.

Preset EDID: User can choose EDID from the preset EDID list.

User defined EDID: click the “Browse” button to choose user defined “.bin” EDID from Control PC local storage and press “upload” button to save to the unit, then you will see the user-defined EDID in the preset EDID list.

INPUT HDCP: support to set unit compatible or incompatible with input.

OUTPUT HDCP: support Follow Input , follow sink, and HDCP passive.

The screenshot displays the web interface for the VIVOLINK 4K60 4x4 HDMI Matrix Switcher w/ 60M Extension. The interface is divided into a left sidebar with navigation buttons and a main content area with three sections: EDID, INPUT HDCP, and OUTPUT HDCP.

Left Sidebar: Contains buttons for Switching, Input, Output, CEC, EDID & HDCP (highlighted), Control, Network, and Settings.

EDID Section:

- Inputs 1-4: Each has a dropdown menu showing "HDMI 4K60 4 : 4 : 48-bit, 2.0 PCM" and a "Confirm" button.
- User-defined 1: Shows ".bin" with "Browse" and "Upload" buttons.
- User-defined 2: Shows ".bin" with "Browse" and "Upload" buttons.

INPUT HDCP Section:

- Inputs 1-4: Each has radio buttons for "Compatible" (selected) and "Incompatible".

OUTPUT HDCP Section:

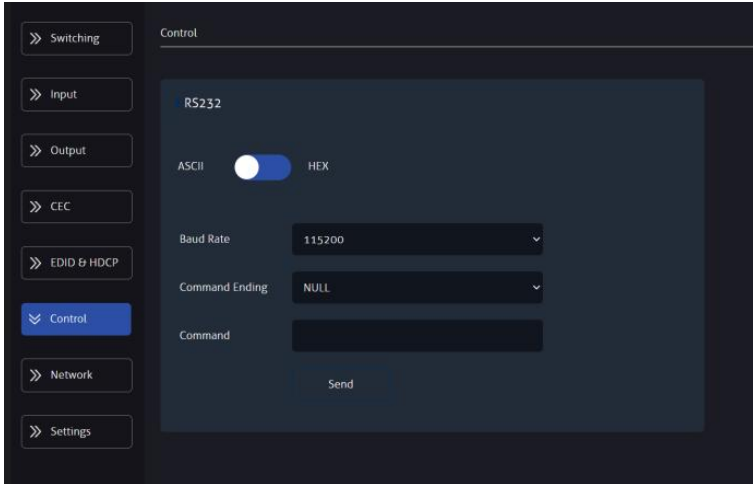
- Outputs 1-4: Each has a dropdown menu showing "Follow Input" and an "Apply" button.

Footer:

- Bottom Left: Firmware: V1.0.0
- Bottom Right: VIVOLINK PROFESSIONAL AV SOLUTIONS VLHDMI4K4D KIT

6.7 Control

User can configure RS232 configuration in this page, VLHDMIMAT4X4D KIT support to upload user defined welcome image in this tab page.



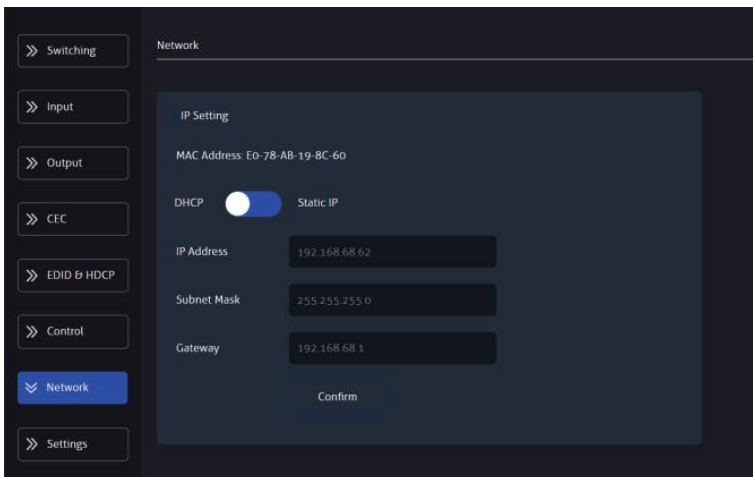
The screenshot shows the 'Control' tab selected in the left sidebar. The main content area is titled 'Control' and features an 'RS232' section. Within this section, there is a toggle switch for 'ASCII' (which is currently turned on) and a 'HEX' option. Below the toggle, there are three input fields: 'Baud Rate' set to '115200', 'Command Ending' set to 'NULL', and an empty 'Command' field. A 'Send' button is located at the bottom of the 'Command' field.

6.8 Network

User can check unit Mac address here and configure unit network setting.

IP mode: DHCP (default) and Static IP configurable, if set to static IP mode then need to configure network manually.

Note: have to Click “Confirm” button to apply network setting.



The screenshot shows the 'Network' tab selected in the left sidebar. The main content area is titled 'Network' and features an 'IP Setting' section. At the top, it displays the 'MAC Address: E0-78-AB-19-8C-60'. Below this, there is a toggle switch for 'DHCP' (which is currently turned on) and a 'Static IP' option. Under the 'Static IP' option, there are three input fields: 'IP Address' set to '192.168.68.62', 'Subnet Mask' set to '255.255.255.0', and 'Gateway' set to '192.168.68.1'. A 'Confirm' button is located at the bottom of the 'Static IP' section.

6.9 System Settings

Other available settings available for the unit is included in System Settings page.

Access

Standby Log Out

4K60 4x4 Matrix w/ 60M Extension

Admin Credentials

Username Admin

Password

New Password Confirm

User Credentials

Username User Confirm

Password Confirm

Front Panel Lock

ON OFF

Firmware Upgrade

Selected Firmware bin Browse Upgrade

Factory Default

Confirm

Firmware: V1.0.0

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VLHMMIMAT4K4D KIT

Admin and user Credentials: Update credentials, for safety consideration will need to confirm current password before update password for admin.

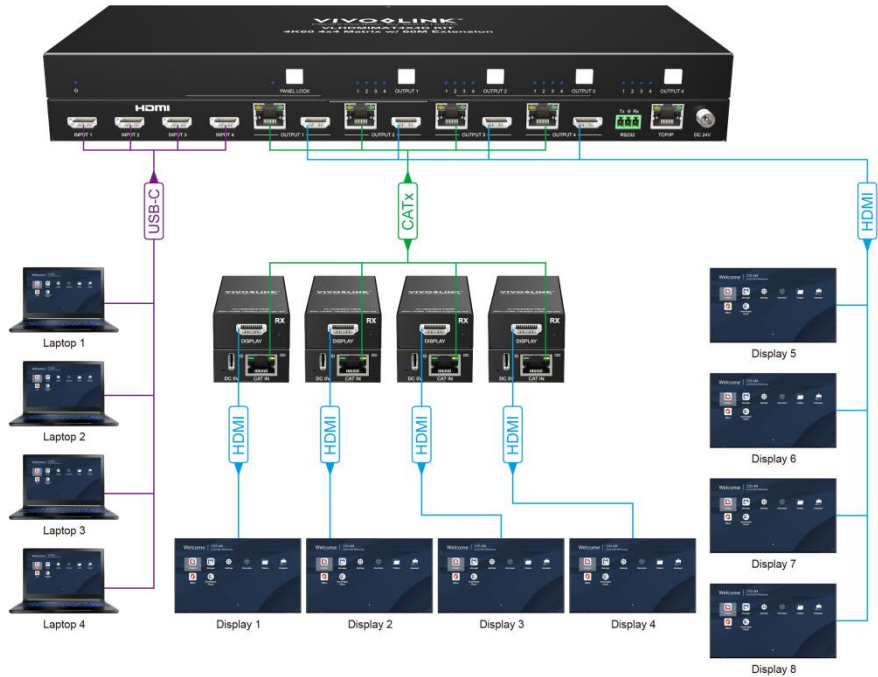
Front Panel Lock: Default is set to “OFF” and user can switch to “ON” to disabled Front Panel buttons.

Firmware Upgrade: Click “Browse” to select firmware from local storage and click “Upgrade” to start firmware upgrading.

Cautious: when upgrading firmware, please make sure power supply stable and waiting patiently till upgrading finished.

Factory Default: Click confirm button to reset unit.

7. System Diagram



8. Attached with API list

NO.	Command	Description	Example feedback
1	HELP	Query system command	List commands 01.HELP 02.STATUS 03.RESET 04.RESETALL 05.REBOOT 06.BAUDRATE <x> 07.POWER:ON 08.POWER:OFF 09.POWER STATUS 10.VIDEO<x>:<y> 11.EDIDU:<x> 12.EDID<x>:<y> 13.LOCKED 14.UNLOCKED 15.SET IP <xxx.xxx.xxx.xxx> 16.SET MASK <xxx.xxx.xxx.xxx> 17.SET GATEWAY <xxx.xxx.xxx.xxx> 18.DHCP:ON 19.DHCP:OFF 20.DHCP STATUS 21.RS232SEND:<y>:<z>:<aaa> 22.CECI<x>:<yyy> 23.CECO<x>:<yyy> 24.INHDCP<x>:ON 25.INHDCP<x>:OFF 26.INHDCP STATUS 27.POC<x>:ON 28.POC<x>:OFF 29.POCSTATUS 30.OUTAVMUTE<x>:ON 31.OUTAVMUTE<x>:OFF 32.OUTAVMUTE STATUS 33.HDCP<x>:PAS 34.HDCP<x>:MAT 35.HDCP<x>:DBG 36.HDCP STATUS

2	STATUS	Query system status	- Model name: VLHDMIMAT4X4D - Model type: 4K60 4x4 Matrix w/ 60M Extension - FW Version: 1.0.0a - Power: on - Front panel: unlocked - Local RS232 baudrate: 115200 - MAC: 10-7D-AB-19-05-2B - DHCP: on - IP addr: 192.168.68.63 - IP Mask: 255.255.255.0 - IP Gateway: 192.168.68.1 - Input 1 EDID: 1 - Input 2 EDID: 1 - Input 3 EDID: 1 - Input 4 EDID: 7 - Input 1 HDCP compatible: on - Input 2 HDCP compatible: on - Input 3 HDCP compatible: on - Input 4 HDCP compatible: on - Output 1: input 4 - Output 2: input 4 - Output 3: input 4 - Output 4: input 4 - Output 1 enable: on - Output 2 enable: on - Output 3 enable: on - Output 4 enable: on - Output 1 HDCP: follow display - Output 2 HDCP: follow display - Output 3 HDCP: follow display - Output 4 HDCP: follow display - Output 1 video and audio mute: off - Output 2 video and audio mute: off - Output 3 video and audio mute: off - Output 4 video and audio mute: off - Rx 1 POC: on - Rx 2 POC: on - Rx 3 POC: on - Rx 4 POC: on
3	RESET	Reset unit, not including IP settings	OK: Factory default.
4	RESETALL	Reset unit	OK: Factory default with network config.
5	REBOOT	Reboot unit	Rebooted.
6	BAUDRATE x	Set unit RS232 baudrate Support use bumber or detailed baudrate 1:2400 2:4800 3:9600 4:19200 5:38400 6:57600 7:115200	OK: Set baudrate to 9600.
7	POWER:ON	Power on unit	OK: Power on.

8	POWER:OFF	Enter into standby mode.	OK: Power off.
9	POWER STATUS	Query unit Power status	- Power: on
10	VIDEOx:y	Switch Input [x] = output x=1-4 Output 1 - Output 4 x=0 all output <y>= Input y=1-4 Input 1-4	OK: Output 1 switch to input 1. OK: All outputs switch to input 1.
11	EDIDU:X	Upload User defined EDID <x>= 1-2 User defined EDID 1-2	OK: User define EDID 1 upgraded. OK: All user define EDID upgraded.
12	EDIDx:y	Select EDID x =input 1-4 = INPUT 1-4 0 = ALL input y:= EDID	OK: Input 1 EDID upgraded by 1 EDID. OK: All Inputs EDID upgraded by 1 EDID.
13	LOCKED	Disable Front Panel buttons	OK: Front panel locked.
14	UNLOCKED	Unlock front panel buttons	OK: Front panel unlocked.
15	SET IP: xxx.xxx.xxx.xxx	Set GUI IP address	OK: IP addr: 192.168.0.178
16	SET MASK: xxx.xxx.xxx.xxx	Set GUI netmask	OK: IP Mask: 255.255.255.0
17	SET GATEWAY: xx.xxx.xxx.xxx	Set GUI gateway	OK: IP Gateway: 192.168.0.1
18	DHCP:ON	Enable DHCP mode	OK: DHCP on.
19	DHCP:OFF	Disable DHCP mode	OK: DHCP off.
20	DHCP STATUS	Query DHCP status	- DHCP: off
21	RS232SEND:y:z:aaa	Send third party devices control RS232 commands y=baud rate 1=2400 2=4800 3=9600 4=19200 5=38400 6=57600 7=115200 z= command format 1=ASCII 2=HEX aaa=command If set to HEX format, blank space is needed in commands	OK: RS232SEND: 3:1:123456 123456 OK: RS232SEND: 3:2:31 32 33 34 35 36 123456
22	CECI[x]:<yyy>	Send CEC command to input X=Input x=0 all input x=1-4 input 1-4 yyy= CEC commands, must be hex	OK: Input 2 CEC send <04 44 4A>.

		format and support 12 bytes max. Supported CEC data please refer to the Input CEC Logiagl Address	
23	CECO[x]:<yyy>	Send CEC command to output X=HDMI output x=0 all output x=1-4 output 1-4 yyy= CEC commands, must be hex format and support 12 bytes max. Supported CEC data please refer to the Input CEC Logiagl Address	OK: Output 1 CEC send <40 04>. OK: Output 1 CEC send <40 36>.
24	INHDCP[x]:ON	Enable input HDCP compatibility x=input port x=0 all input x=1-4 input 1-4	OK: Input 1 HDCP compatible on. OK: All inputs HDCP compatible on..
25	INHDCP[x]:OFF	Disable input HDCP compatibility x=input port x=0 all input x=1-4 input 1-4	OK: Input 1 HDCP compatible off. OK: All inputs HDCP compatible off.
26	INHDCP STATUS	Query input HDCP compatibility	- Input 1 HDCP compatible: on - Input 2 HDCP compatible: on - Input 3 HDCP compatible: on - Input 4 HDCP compatible: on
27	POC[x]:ON	Enable output RJ45 port POC x=output RJ45 port x=0 all output x=1-4 output 1-4	OK: Rx POC 1 on. OK: All rx POC on.
28	POC[x]:OFF	Disable output RJ45 port POC x=output RJ45 port x=0 all output x=1-4 output 1-4	OK: Rx POC 1 off. OK: All rx POC off.
29	POCSTATUS	output RJ45 port POC status	- Rx POC 1: on - Rx POC 2: on - Rx POC 3: on - Rx POC 4: on
30	OUTAVMUTE[x]:ON	Mute output audio and video x=output port x=0 all output x=1-4 output 1-4	OK: Output 1 video and audio mute on. OK: All outputs video and audio mute on.
31	OUTAVMUTE[x]:OFF	Unmute output audio and video x=output x=0 all output x=1-4 output 1-4	OK: Output 1 video and audio mute off. OK: All outputs video and audio mute off.
32	OUTAVMUTE STATUS	Query output audio and video mute status	- Output 1 video and audio mute: off - Output 2 video and audio mute: off - Output 3 video and audio mute: off - Output 4 video and audio mute: off
33	HDCP[x]:PAS	Set output HDCP follow Input x=output x=0 all output x=1-4 output 1-4	OK: Output 1 HDCP follow input. OK: All outputs HDCP follow input.

34	HDCP[x]:MAT	Set output HDCP follow sink x=output x=0 all output x=1-4 output 1-4	OK: Output 1 HDCP follow display. OK: All outputs HDCP follow display.
35	HDCP[x]:DBG	Set output HDCP to debug mode x=output x=0 all output x=1-4 output 1-4	OK: Output 1 HDCP debug mode. OK: All outputs HDCP debug mode.
36	HDCP STATUS	Query output HDCP status	- Output 1 HDCP: follow display - Output 2 HDCP: follow display - Output 3 HDCP: follow display - Output 4 HDCP: follow display