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WyreStorm®



**WyreStorm 4K Matrix
Solutions**

MX-0808-4K

WyreStorm 8x8 4K HDMI 1.4 Matrix with Audio
Processor Including ARC support

Instruction Manual



Thank you for choosing this WyreStorm product.
Please read these instructions carefully before installing to avoid complications later.

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1. Introduction

The WyreStorm MX-0808-4K matrix switcher brings the convenience and reliability of short range HDMI switching to UltraHD 4K with independent AV distribution and control of up to eight UHD 4K or 1080p HD inputs to up to eight UHD or HD outputs over HDMI 1.4, including advanced audio processing, extraction and ARC functionality.

The MX-0808-4K supports transmissions of uncompressed HD video up to 1080p at 60Hz with 36bit Deep Color and full 3D, and UHD 4K 4096x2160p resolutions up to 30Hz with a 4K subsampling rate of 4:4:4 for a superior color palette in UltraHD.

Including multichannel digital audio and two-way control of source and display devices via RS232, RS485 and LAN, the MX-0808-4K also offers manual EDID management for improved communication between HDMI devices and greater compatibility during installation.

In addition, the MX-0808-4K features enhanced audio capabilities, including ARC (Audio Return Channel) for the capacity to extract digital audio from HDMI transmissions and S/PDIF coaxial and optical outputs for connection to AVR or analogue audio output devices that enable the creation of 16x8 audio matrix systems.

WyreStorm serial control software also includes advanced audio processing functionality for the adjustment of individual HDMI source audio settings to specific outputs and delay to avoid audio/video synchronization issues.

For further information on this product and other WyreStorm ranges, visit our website or download our latest product guide. wyrestom.com

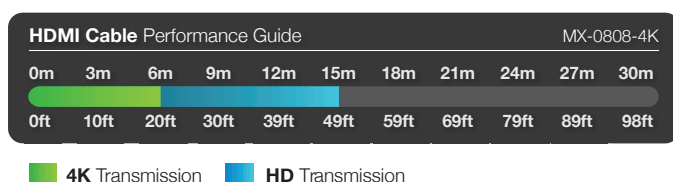
2. Features

- Supports both 3840 (UHD) & 4096 (DCI) x2160 resolutions, up to 30Hz at 4:4:4 for a full 4K color palette.
- Audio matrix routes source or ARC audio to assignable S/PDIF ports
- Toslink optical or coaxial digital audio for enhanced audio connectivity and audio processing via included software
- Control via IR, Serial or LAN, also through any of our control partners
- Independent switching and control of up to eight UltraHD 4K or full HD HDMI sources to up to eight individual HDMI display devices
- Supports 2160p resolutions up to 30Hz and 1080p up to 60Hz
- 4K / 24bit color with chroma sub-sampling color palette 4:4:4 at 30Hz, 1080p / 36bit Deep Color at 60Hz
- HDMI 1.4 with HDCP and 4Kx2K - transmission distance

recommended: 7m/23ft (4K), 15m/49ft (1080p)*

- Multichannel audio support up to 7.1 including DTS Master HD and Dolby True HD
- ARC support enables audio to be extracted from HDMI signals with RCA coaxial and optical S/PDIF output connection to audio output devices for the creation of 16x8 audio matrix systems (8 x HDMI + 8 x ARC audio x 8 coaxial/optical de-embedded from HDMI output)
- Audio processing software included for the adjustment of source audio inputs to outputs and delay to avoid audio/video synchronization issues
- Full 3D up to 1080p @60Hz - frame packing (Blu-ray) & stereoscopic (satellite/cable)
- Flexible control options – front panel buttons, local IR, RS232, RS485 and LAN
- RS232 serial control allows central control of all connected display devices via WyreStorm control software included or leading third party control systems (see website for compatible systems)
- Additional infrared extension port for longer IR connections
- Remote control can be learned into a universal remote handset to allow the control of multiple devices from one handset
- EDID management via DIP switches to read and copy EDID from connected devices to aid communication and device compatibility
- HDCP compliant with constant feed to prevent screen drop-outs
- 1U chassis size
- Can be used with any WyreStorm 4K extender product to increase transmission distance or any WyreStorm DAC model to convert digital audio outputs to analogue
- Compatible with EXP-CON-4K-DD Dolby Digital Downmixer with 4K/HD scaling to scale video between 4K and 1080p or downmix Dolby Digital 5.1 for combinations of UHD & HD sources/displays and multichannel and stereo audio within the same distribution. **See wyrestorm.com for details**

*Recommended transmission conditions denote cable run within specified distance range and specification of devices used, including no electrical interference, the use of straight cable runs with no bends or kinks and no patch panels or wall outlets used. The presence of any of these factors may compromise bandwidth and signal strength.



NOTE: Maximum HDMI transmission distance

7m/33ft (4K)

15m/49ft (1080p)

3. Safety Precautions



WARNING

To reduce the risk of fire, electric shock or product damage:

1. Do not expose this apparatus to rain, moisture, sprays, drips or splashes and ensure that no objects containing liquids are placed on the apparatus, including cups, glasses and vases.
2. Do not place this unit in a confined space such as enclosed shelving, cabinets or bookshelves. Ensure the unit is adequately ventilated.
3. To prevent the risk of electric shock or fire hazard due to overheating, do not cover the unit or obstruct ventilation openings with material, newspaper, cardboard or anything that may restrict airflow into the unit.
4. Do not install near external heat sources such as radiators, heat registers, boilers or any device that produces heat such as amplifiers or computers and do not place near sources of naked flame.
5. 5. Unplug apparatus from power supply during lightning storms or when unused for long periods of time.
6. Protect the power cable from being walked on, pinched or restricted in any way, especially at plug connections.
7. Only use attachments/accessories specified by the manufacturer.
8. Units contain non-servicable parts - Refer all servicing to qualified service personnel.

4. Package Contents

- 1 x MX-0808-4K 4K main chassis unit
- 1 x MX-0808-4K matrix remote control handset
- 1 x Printed instruction manual
- 1 x IR Receiver extension (38KHz for local IR control)
- 1 x USB to Rs232 serial cable
- 1 x 12V 5A DC power supply
- 1 x Pair matrix mounting brackets

5. Specification

Technical

I/O Connections	8 x HDMI IN 8 x HDMI OUT 1 x RS485 1 x RJ45 1 x RS232 8 x SPDIF OUT (coaxial) 8x SPDIF OUT (optical) 1 x IR EXT 1 x EDID DIP switch
Output Bandwidth Signalling Rate	10.2Gbps
Input video Signal	1.2 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Maximum Pixel Clock	297MHz
Video Impedence	100 Ω
Audio Impedence	75 Ω
Power Supply	12V 5A DC (5.5mm)
Power Consumption	40W Max
BTU Rating	136.5
Video Format Supported	480i, 576i, 480p, 576p, 720p, 1080i, 1080p @ up to 60Hz, 3840 (UHD) and 4096 (DCI) x 2160p @ 30Hz
Audio Format Supported	Multichannel audio - DTS-HD 5.1 / 7.1, Dolby HD 5.1 / 7.1
Output Video	HDMI 1.4 with HDCP + full 3D (up to 1080p) - frame packing (Blu-ray) & stereoscopic (satellite/cable)
Control Method	IR control Front panel buttons RS232 RS485 LAN
Operating Temperature	32°F to 113°F (0°C to 45°C)
Operating Humidity Range	10% to 90%, non-condensing
ESD Protection	±8kV (air-gap discharge) ±4kV (contact discharge)
Surge Protection	Voltage: ±1kV

Cable Specifications

NOTE: Cable types below are for reference only. This product is tested using WyreStorm HDMI cables - we recommend use of WyreStorm cables for guaranteed quality and reliability of transmission when dealing with UHD 4K content.

Ensure cables and connections are in good condition, with no bends or kinks and no patch panels or wall outlets used. The presence of any of these factors may compromise bandwidth and signal strength.

Cable Type	Range	Supported Video
HDMI 1.4	7m/23ft	3840 (UHD) and 4096 (DCI) x 2160p @ 30Hz with 24bit / 4:4:4 chroma sub-sampling color palette
	15m/49ft	1080p @ 60Hz with 36bit Deep Color (including 3D)

! Please note cable type, range and supported video limitations. Successful transmission may not be achievable with cable or distances other than those specified.

General

Dimensions (W x H x D)	440mm x 42mm x 204mm / 17.3" x 1.7" x 8"
Mass (Main unit)	2.3kg / 5.0lbs
Rack Space Required	1U
Certification	CE, FCC, RoHS

6. Front Panel Description

- 1** Power switch - turns device ON/Off
- 2** LED input/output select screen - Displays matrix switching status for each connected input/output
- 3** IR receive window - Receives control signals from IR control handset (accepts commands for this model matrix only)
- 4** Input select buttons (UP/DOWN) - Selects input source by pressing up/down selection - Press ENTER to confirm selection

- 5** Output select buttons (left/right) - Selects output using the left /right selection button - Press ENTER to confirm selection

- 6** Enter - Press to confirm input/output selection

Note: Input or Output selection will not be made unless Enter is pressed to confirm.



7. Rear Panel Description

- 1** RS485 port - Connects to a RS485 device, such as a PC or control system device, with a RJ45 to RS485 converter and a serial cable for matrix control.
- 2** LAN port - RJ45 port connects to an active IP network for control of matrix via LAN (Telnet).
- 3** RS232 port - Connect to a RS232 device, such as a PC or control system device, with the supplied USB to UART cable or a direct serial cable for matrix control or to upgrade matrix firmware.
- 4** HDMI IN - Inputs 1~8 (left to right) connect to local HDMI source devices with HDMI 1.4 cables or DVI to HDMI cables.

- 5** S/PDIF Optical / Coaxial Audio OUT 1~8 - Connects to digital or analogue output audio system

- 6** HDMI OUT - 1~8 (left to right) - Connects to local HDMI display devices with HDMI or DVI to HDMI cables.

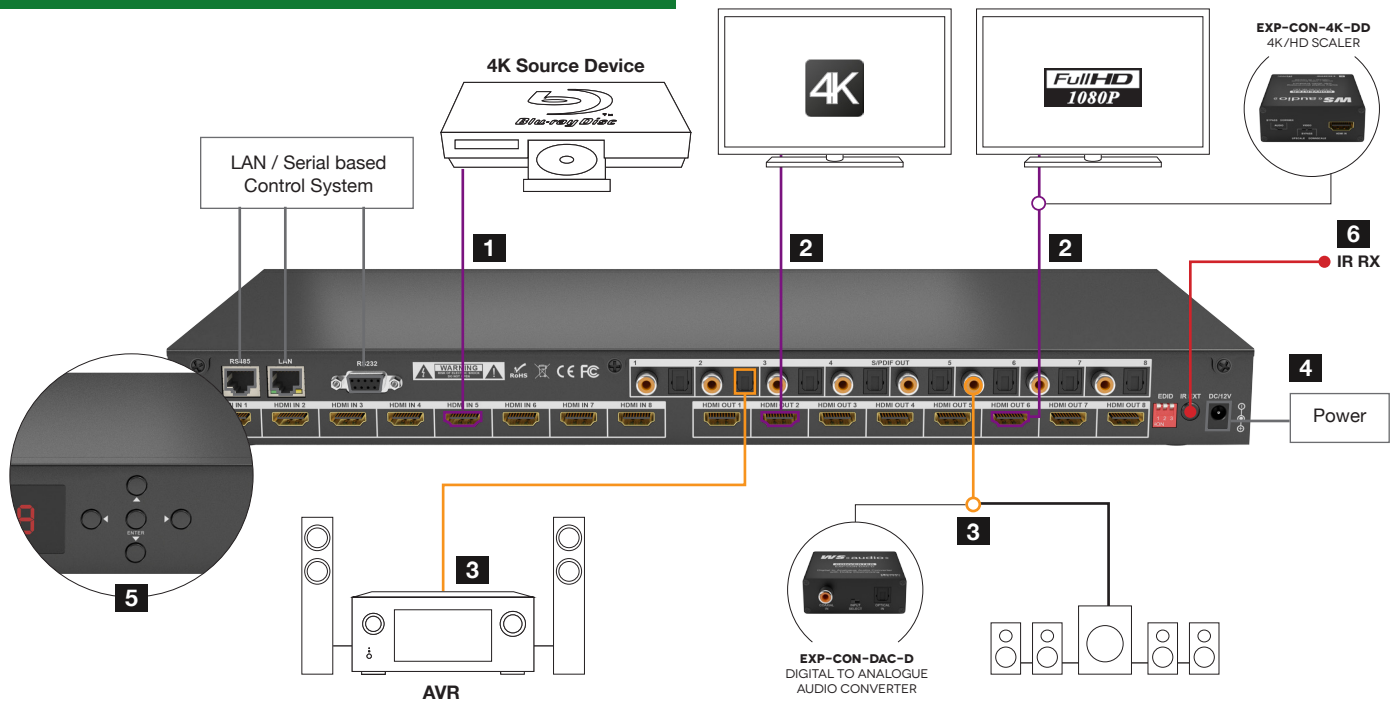
- 7** EDID DIP Switch - Manual DIP setting for EDID management of matrix for improved device connection compatibility. (See EDID section for settings)

- 8** IR EXT - Connects to a supplied IR receiver for IR signal reception to locally control the matrix.

- 9** Power - 12V 5A DC power supply input



8. Connection & Operation



The matrix allows any eight input channels (HDMI) to be routed to any eight output channels (HDMI), regardless of source HDCP status.

NOTES BEFORE INSTALLATION:

Do Not Hotswap HDMI plugs – Insert/extract cables carefully with devices and mains SWITCHED OFF to avoid static build up passed over the cable damaging circuitry.

Please be mindful of HDMI cable condition and distance limitations stated in Specification (Section 5 of this manual) 4K: 7m/23ft / 1080p: 10m/33ft

Care should always be taken when inserting/removing any cables - do not force connection should resistance be felt - and ensure power supplies are disconnected from all devices before installation

Ensure that any 4K sources and 4K display devices used are compatible and outputting the correct resolutions for EDID to be successfully negotiated and signals received.

NOTE Both 4K and 1080p HD sources and displays may be contained within the same distribution – to combine 4K and HD sources/displays a WyreStorm EXP-CON-4K-DD 4K/HD scaler with Dolby Downmixing must be used between matrix output and connected display device.

We advise CAT 2 High Speed HDMI cables be used to connect source and display devices - we recommend using WyreStorm HDMI cables.

INITIAL CONNECTION:

- 1** Using good quality HDMI 1.4 cable, firmly connect 4K or HD source devices (such as: Blu-ray, computer, games console, satellite/cable, music streaming device, CCTV etc.) to the relevant HDMI IN ports 1-8 of the matrix.
- 2** Firmly connect HDMI OUT 1-8 of the matrix to HDMI IN of 4K or HD display devices, ensuring both source and display devices are compatible and correctly configured to accept the signal.
- 3** If using an AVR or analogue audio device, connect via the S/PDIF optical / coaxial audio outputs.

NOTE If connecting to an analogue audio output, a WyreStorm EXP-CON-DAC-D Digital to Audio converter should be used between the coaxial output and the analogue device.

- 4** Insert the matrix power supply included and switch on the Power on the front panel. Check front panel LED screen is lit to indicate your WyreStorm system should now be fully connected and ready for use.

NOTE Remember, always switch off the matrix before unplugging any inputs or outputs – follow last

on, first off protocol.

5 Switch between sources and displays using the matrix front panel buttons, via IR remote control, or serial RS232, RS485 or LAN - see Control section for details.

6 If IR extension is required, should the matrix IR sensor window be obstructed or the matrix itself placed out of sight, connect the included IR RX to the matrix IR EXT port, ensuring the IR receiver eye is placed in clear view of the handset used to control.

NOTE Should connection issues be experienced between transmission and receiving device, investigate the root cause of the issue by following the checklist in the Troubleshooting section of this guide.

COMBINED 4K AND HD DISTRIBUTION:

If your distribution contains both 4K and 1080p sources and displays, the matrix will search for the most compatible EDID screen resolution between all connected devices, (typically the lowest resolution ALL displays can support), which will in most cases result in resolution disparity and automatic downscaling 4K content to 1080p across all screens.

To maintain 4K resolutions to 4K screens in distributions containing lower resolution legacy displays, a WyreStorm EXP-CON-4K-DD scaler and Dolby downmixer should be used inline between HDMI devices to scale down 4K transmissions to 1080p HD 24fps.

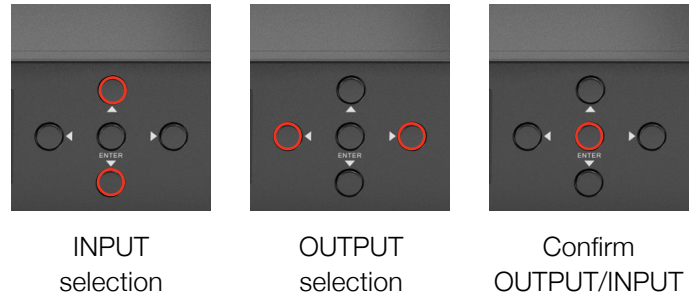
Furthermore, Dolby downmixing to stereo PCM enables multichannel audio up to 5.1 to be distributed to zones that can support it and automatically scaled down to compatible stereo PCM for those that cannot without sacrificing the integrity of the distribution.

Visit wyrestorm.com for more information on 4K/HD scaling and Dolby downmixing.

9. Front Panel Control

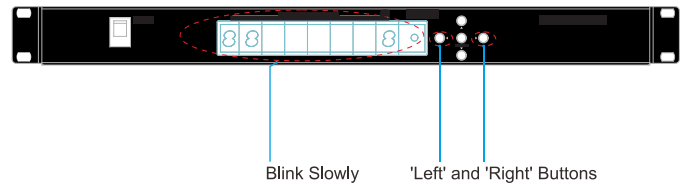
The matrix is designed with ease of connection and control in mind with basic switching of source inputs to output displays achieved via the front panel control of the matrix and the front LED screen displaying the current input and output status of the matrix.

On power up, the front panel will flash as the matrix initialises. When the display stops flashing, the matrix is ready to use.



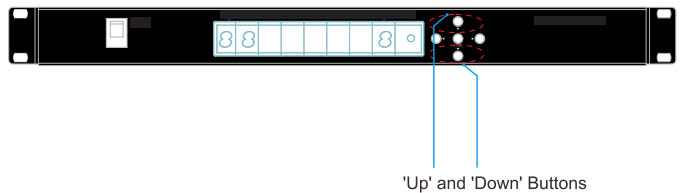
OUTPUTS are selected by pressing the LEFT and RIGHT arrow buttons to scroll forwards and backwards numerically through the displays connected to the matrix. The corresponding OUTPUT channel number will blink on the display when reached.

1 Press the LEFT ARROW or RIGHT ARROW key to select an output. After the selection is complete, the corresponding LED indicator blinks.

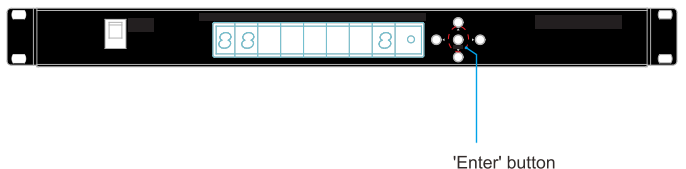


Likewise, the UP and DOWN arrow buttons scroll numerically through any INPUT sources connected to the system. When the desired OUTPUT and INPUT is reached, push the ENTER button to confirm the selection. The display will stop blinking to confirm the matrix has been set.

2 Press the UP ARROW or DOWN ARROW key to select an input.



3 Press the ENTER key to confirm the selection. After the selection takes effect, the LED stops blinking.



Repeated pressing of the select button of a specific output scrolls numerically through the HDMI input devices connected to the matrix, with the corresponding LEDs illustrating when a device has been selected for that

particular output. The chosen input will automatically store for the output so, even when the matrix is powered off and on, the last selected input/output combination will remain.

Example

If outputs 1-4 need to be set to input 1 and outputs 5-8 need to be set to input 2, the following sequence of button presses need to be performed.

To switch output/input selection:

- 1** Set the output 1 to the input 1.
 - i. Press left/right selection button to highlight the Output 1. LED blinks slowly to indicate the output has been chosen.
 - ii. Press up/down selection button to switch that Output to Input 1.
 - iii. Press Enter button for the selection take effect. LED stops blinking to indicate the operation is successful and the Output has been set to the chosen input.

- 2** Repeat steps above to perform the other output/input selections. The final configuration will appear as below.



10. Matrix IR Remote Control

The same basic switching functions can also be accessed via the remote control.

Simply toggle through the INPUT sources connected to the matrix by pressing the left/right arrow buttons in each numbered OUTPUT section on the handset.

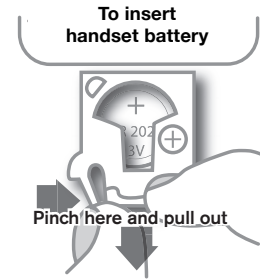
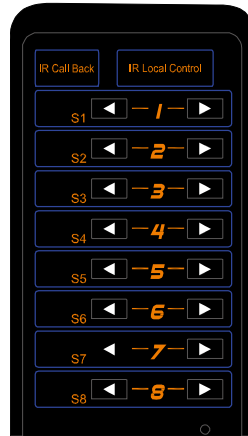
NOTE Ensure the remote handset is pointed directly at the IR receiver window on the matrix fascia or the IR RX Extension receiver eye if connected for signals to be received by the matrix.

Operation of the handset is the same regardless of location – locally (source/matrix location - IR TX) or Remotely (display location - IR RX).

Note:

- Ensure IR receivers and IR emitters are fully connected to correct matrix ports and placed in clear view to receive IR signals from the remote (IR RX) and transmit signals to the matrix (IR TX)

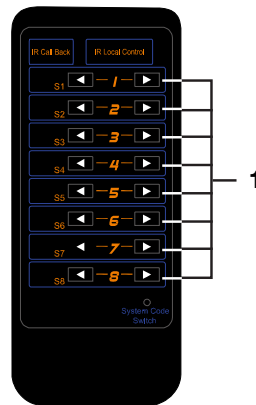
- The remote handset must be pointed directly at the IR receiver window on the matrix fascia or the IR RX Extension receiver eye for signals to be received by the matrix.





Install battery '+' side up and only use a CR2025 3v battery. Slide compartment back into the handset.



i) Matrix Control at Matrix Location (Local)



Local control of the matrix from the matrix location is achieved by sending IR commands from the handset to the IR receiver window on the front of the matrix or the IR RX extension receiver connected to the rear panel IR EXT port.



1 Previous and next buttons  
Scrolls numerically between input sources for each output.

NOTE: MX-0808-4K supports Local IR Control only. IR Call Back function not accessible on this model.

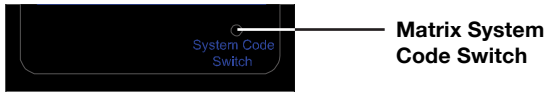
When using the matrix remote locally, point the handset directly at the matrix or IR RX extension receiver and press   are used to scroll between the connected input sources for each individual output display.

For example, to select output display 1 to be set to input source 2, find row 1 on the matrix control handset and scroll   to input source 2.

ii) Matrix System Code Switch

In the event of two MX-0808-4K matrix units are installed within close proximity, such as side by side or above/below in rack, the matrix is capable of switching between two distinct IR System Codes to allow control of either matrix individually via the handset.

Changing the System Code of the handset be assigned to a specific matrix will allow IR commands to be delivered to only that unit.



Matrix System Code Switch

The default system setting is **0x00** to control one matrix, but pressing the SYSTEM CODE button on the handset rapidly THREE TIMES activates the alternative Matrix SYSTEM CODE **0x4e**, allowing independent control of a second unit. Pressing the button three times again to reverts back to default 0x00 setting.

NOTE Changing the System Code is only necessary if you are using two units within close range of the IR signal. If using in different parts of the same room it is likely that you will not need to change the setting.

HINT If your remote control is not working, before changing the battery, try changing the System Code on the handset in case it has accidentally been switched to an alternative matrix control mode.

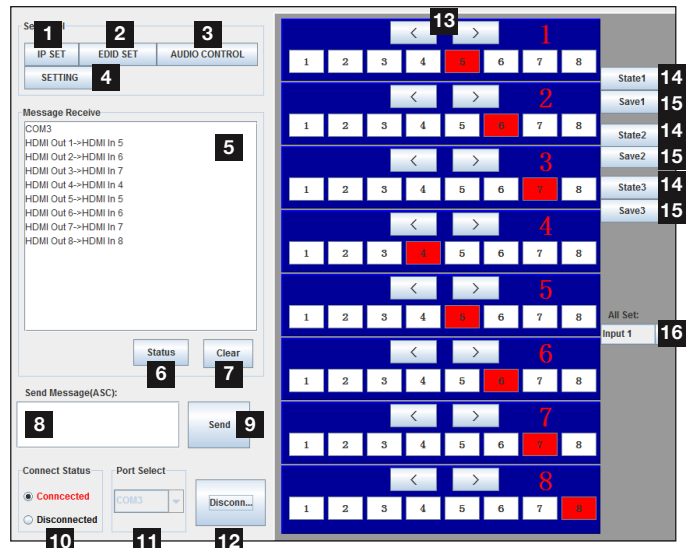
11. RS232 Control

Serial control of the matrix via RS232 enables third party control systems to be integrated within a MX-0808-4K system.

The COMCTL software included with this product communicates via serial to enable advanced matrix features to be accessed, such as relaying information on the status of the system and additional control of matrix settings, including management of IP, EDID and audio settings for optimum performance.

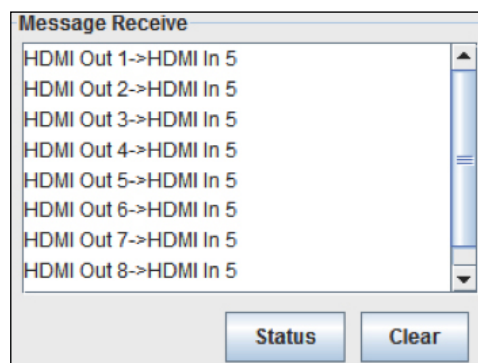
NOTE: COMCTL software and RS232 commands are downloadable from the MX-0808-4K product page at wyrestorm.com

ii) COM Control Software Home Screen



1	Set IP Address
2	EDID Settings
3	Audio Processing
4	Advanced Setting
5	Message Receive Window
6	Matrix Status
7	Message Clear
8	Send Message Window
9	Send Message
10	COM Port Connect State
11	COM Port Select
12	Connect/Disconnect from Matrix
13	Output/Input Switch
14	Select Previously Saved Output State 1, 2 or 3
15	Save Current Output State 1, 2 or 3
16	Select All Outputs to a particular Input

ii) Message Receive Window



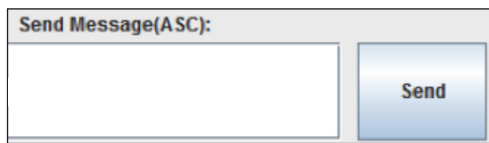
The Message Receive window displays information received from the matrix, such as messages regarding firmware version and input/output selections.

Options in the Message Receive window include:

Status Press to view the current condition of all output ports.

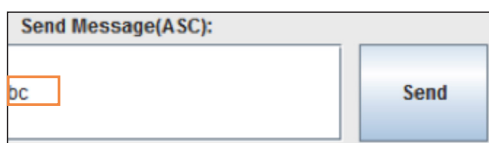
Clear Press to delete the previous received message.

iii) Send Message Window

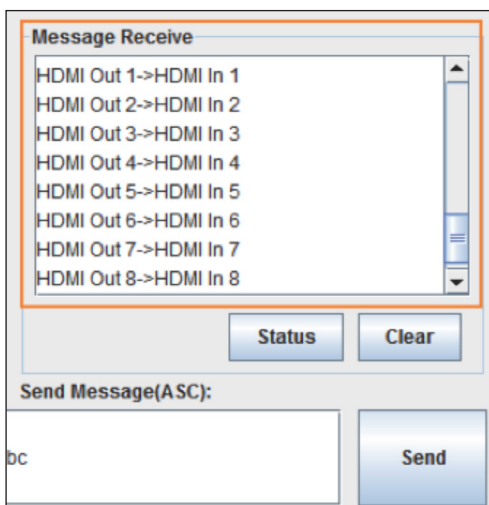


In the Send Message window, messages can be sent to the matrix as follows:

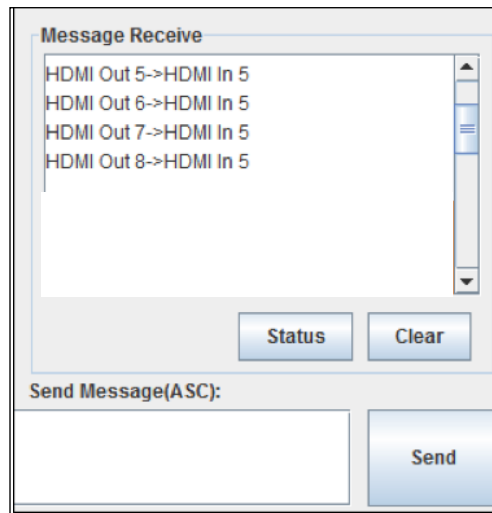
1 Enter serial commands for the matrix, such as one of the instructions for outputs, bc + space (a space is required following)



2 Click Send to view the current condition of all output ports.

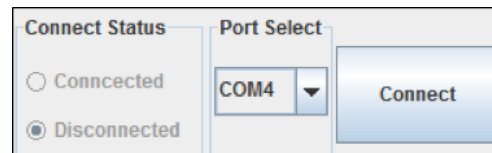


NOTE To view the firmware version currently used in the system, reboot the matrix while it is connected to the COM Control software - firmware version and creation date will be displayed in the window.



NOTE When the matrix is in operation the control code of a certain actions are displayed in the Send Message window.

iv) Connecting the Matrix to a COM Port



To connect the matrix to a COM Port:

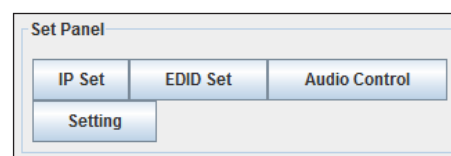
- 1** Launch the COM Control software.
- 2** Use Port Select to select Com Port number
- 3** Click Connect to establish communication with selected Com Port.

When a COM Port is connected, the only option will be to Disconnect and vice versa.

Note: In Connect Status area:

- Connected: indicates that the matrix is connected to the COM port and communication is enabled.
- Disconnected: indicates that the matrix is disconnected from the COM port and communication is disabled.

v) Set Panel introduction

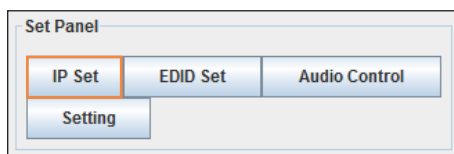


IP Settings

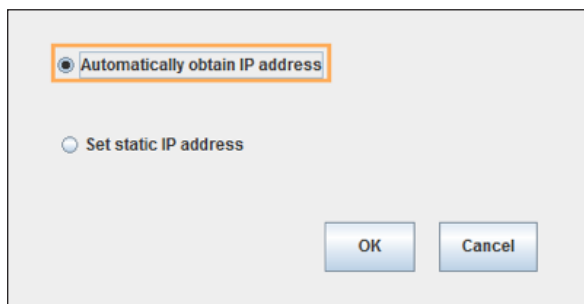
The matrix can also be controlled over LAN, through which it may be accessed through Web GUI or Telnet after obtaining the matrix IP address. By default, the IP address to access the matrix is assigned automatically by the router or switch with a DHCP server.


Obtaining an IP Address Automatically

- 1 Click IP SET in the Set Panel area to allow access to IP functions and obtain / store the IP address.



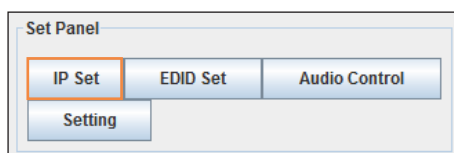
- 2 Select Automatically obtain IP address to enable the IP address to be detected automatically by the system. This option is selected by default.



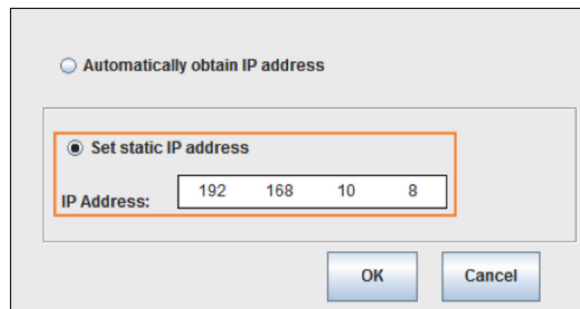
- 3 Click OK to store the IP address and click  to exit.


Set a Static IP Address

- 1 Click IP SET in Set Panel area to allow access to IP functions to obtain and store the IP address.



- 2 Select Set static IP address to manually input the IP functions if no address appears or if the system is unable to detect an IP address. Enter an IP address (such as 192.168.10.8) ensuring the IP addresses of the matrix and your computer are in the same subnet segment.



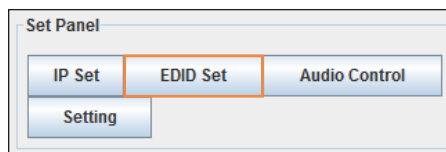
- 3 Click OK to store the IP address and click  to exit.

EDID Settings

The EDID SET window allows users to access and configure EDID settings that can be read, written, saved and recalled, with optimized viewing achieved by writing the output port of a particular display to a specific input port.

NOTE EDID cannot be read from matrix output ports not connected to a display – check matrix outputs are connected to displays before attempting to read EDID.

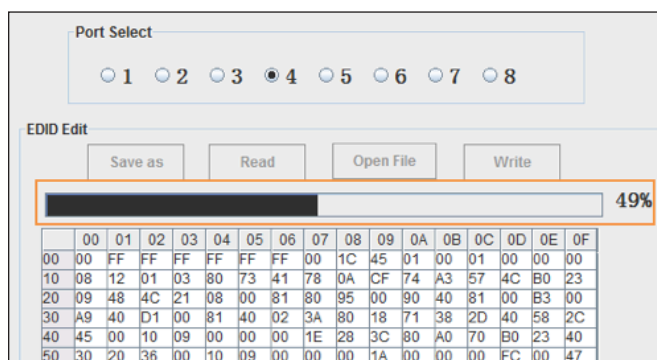
- 1 Click EDID SET in Set Panel area.



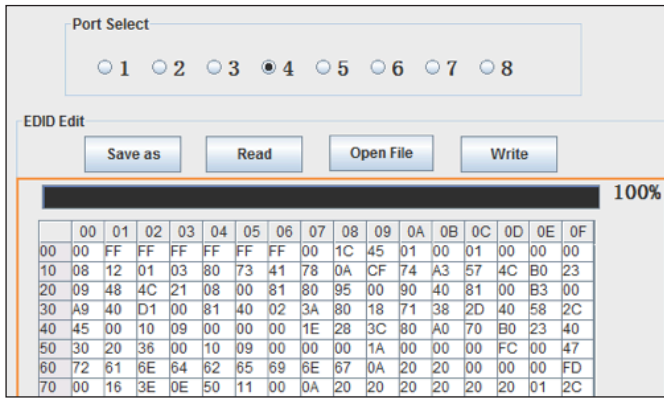
- 2 Select an output port from the Port Select area – such as output port 4 in this case.



- 3 Click Read to read EDID from the selected output port, with the status bar indicating percentage of read progress.

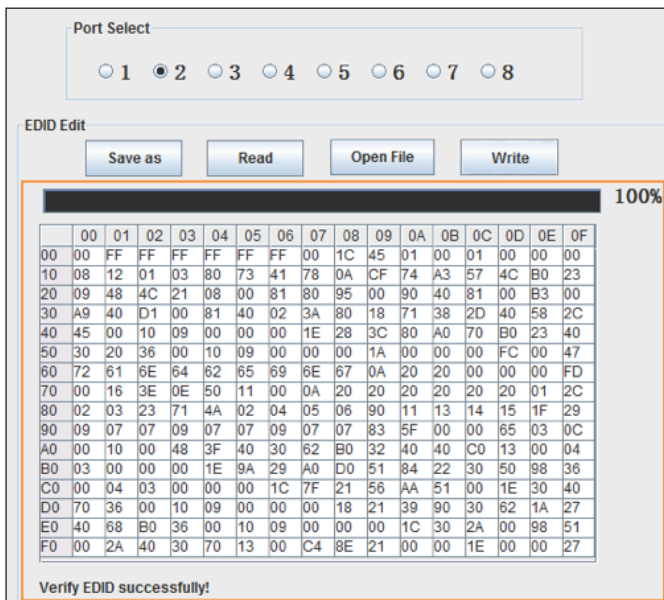


4 Once the reading process is complete, the output port EDID will appear in the table below.



5 Next, select an input port in the same Port Select area - such as input port 2 in this case - and click Write to save the current EDID to the selected input port.

Wait a few seconds for the process to complete.

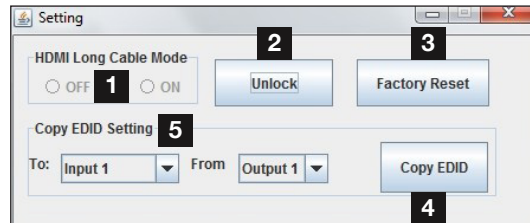
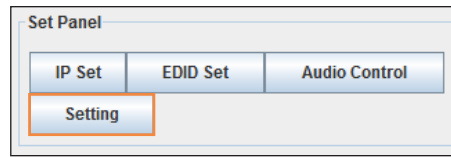


6 Once the writing process is complete, click Save as to save the EDID as a bin file.

7 To write previously saved output port EDID in bin format, click Open File and choose the relevant bin file before selecting an input port and click Write. It is recommended this is done often if specific output EDID from particular display devices are frequently used.

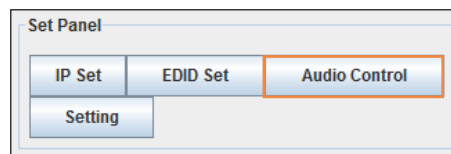
Configuring Advanced Settings

Advanced matrix settings can be configured by clicking SETTING in the Set Panel Area.

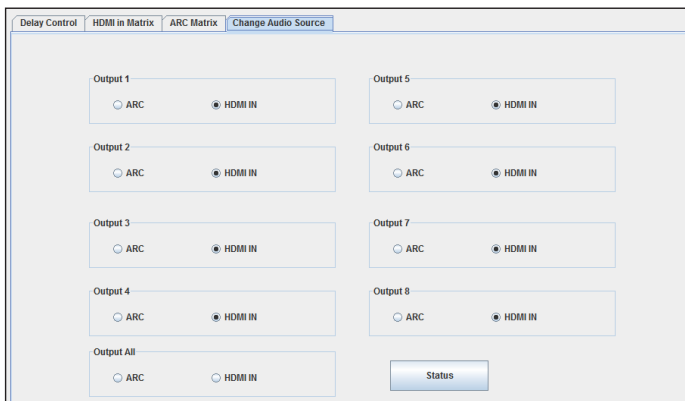


1	HDMI Long Cable Mode	In instances where the distance of the cable may be effecting transmission quality, this setting toggles ON/ OFF to improve display quality and stability. Click Unlock, enter password 123456 and follow the on-screen instructions to activate HDMI Long Cable Mode – reboot the matrix for the change to take effect. NOTE: this setting is designed for assistance only if slight cable distance excess may be an installation factor, it is not intended to bypass cable distance limitations. We recommend following cable distances as stated in the Specifications section of this manual.
2	Unlock	Unlocks HDMI Long Cable Mode function - enter password 123456 and follow the on-screen instructions to activate HDMI Long Cable Mode – reboot the matrix for the change to take effect.
3	Factory Reset	Restores the matrix to its initial Default Setting as shipped. Reboot the matrix for this setting to take effect. Warning: This action will erase all previously saved data/settings – this cannot be undone.
4	Copy EDID Setting	Select I/O from dropdown to copy output ports 1~8 EDID to specific input ports 1~8
5	Copy EDID	Press to copy selected Output port EDID to selected Input port.

vi. Audio Processor Control



The MX-0808-4K features enhanced audio capabilities, including ARC (Audio Return Channel) and the capacity to extract optical and coaxial S/PDIF Digital Audio output from HDMI transmissions. Audio processing software is also included for the adjustment of individual source audio inputs to outputs, HDMI and ARC settings and delay to avoid audio/video synchronization issues.



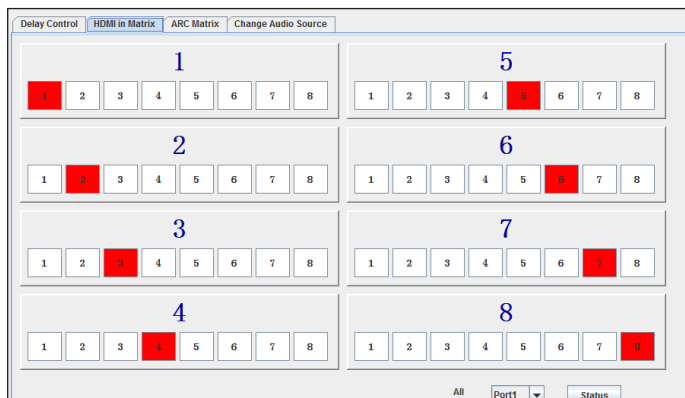
Change Audio Source

Enables the selection of either ARC or HDMI Input as audio source set to a specific Output.

When first entering the screen, all selections for Output numbers will be blank - clicking the STATUS button shows the current status of the audio source for each Output so audio source selections can be changed as desired.

- Selection of ARC sets the audio source as returned audio from the HDMI display device connected to a particular Output port number.
- Selection of HDMI IN extracts the audio from the source device connected to a specific HDMI IN port number.

HDMI IN Matrix



Denotes audio from HDMI source devices connected to HDMI IN ports 1-8 (small numbered boxes) that can be set to audio output ports 1-8 (blue-numbered sections)

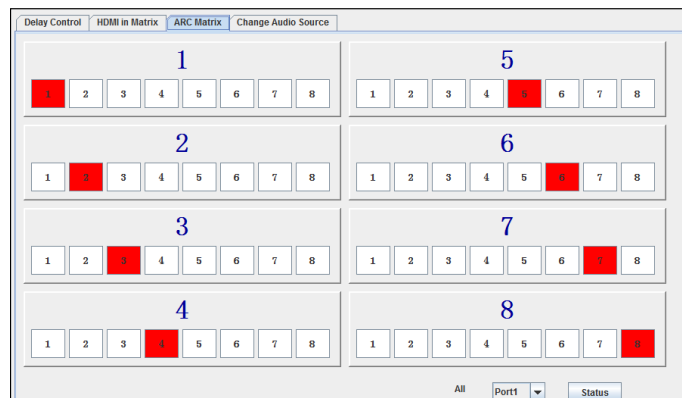
Pressing the status button reveals the current HDMI input audio to Output port configuration - we recommend pressing Status to view current selections when first entering the screen before changing as desired.

Select desired source device audio by clicking the numbered box corresponding to the HDMI IN port number within chosen output port section.

HDMI IN will highlight red when selected.

All 8 audio output ports can also be set to audio from a specific HDMI source using the drop-down selection option at the bottom of the screen.

ARC Matrix



Configuration similar to HDMI in Matrix, but denotes ARC settings of specific HDMI display devices to extract audio from other HDMI display devices connected to matrix.

Individual matrix HDMI OUT Port 1-8 (blue-numbered sections) can be assigned audio from other connected HDMI display devices by clicking a corresponding small numbered box, with selections highlighting red, i.e. if red #4 is selected in Section 1, the HDMI display device connected to HDMI OUT port 1 of the matrix will output audio from the display device connected to HDMI OUT port 4.

Pressing the status button reveals the current ARC audio settings - we recommend pressing Status to view current selections when first entering the screen before changing as desired.

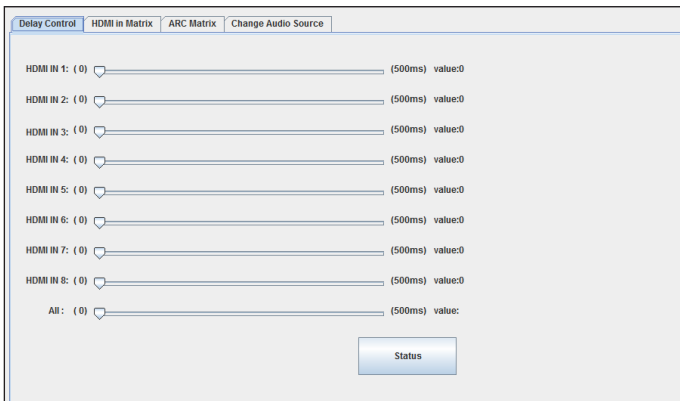
By default each HDMI display device connected to the matrix will output its own audio, i.e. HDMI OUT 1 set to HDMI display 1 audio etc.

All 8 audio output ports can also be set to ARC audio from a specific HDMI display using the drop-down selection option.

Touchboards

205 Westwood Ave, Long Branch, NJ 07740
 Phone: 866-94 BOARDS (26273) / (732)-222-1511
 Fax: (732)-222-7088 | E-mail: sales@touchboards.com

Delay Control



Enables the adjustment in milliseconds of source audio delay to fine-tune synchronization between audio and video for perfect audio timing on all connected screens by delaying the delivery of extracted audio of the HDMI source to the display.

This is particularly useful for lip-sync issues or avoiding distracting fractional mistiming between multiple display devices outputting the same content in the same location.

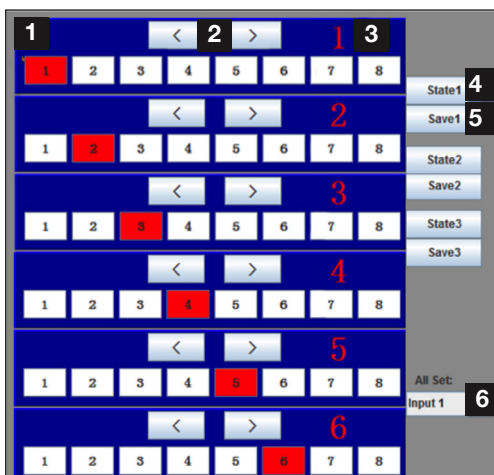
Audio from each connected HDMI source can be adjusted independently values of 50ms, with a maximum delay of 500ms (or half a second). Delay values below:

Zero > 50ms > 100ms > 150ms > 200ms > 250ms > 300ms > 350ms > 400ms > 450ms > 500ms

All connected HDMI inputs can be set to the same delay value and, as with previous audio settings, pressing Status will reveal the current delay control Status of outputs.

vii) Input/Output Switch

The input/output switch allows selection of output port (display) and input port (source) for specific combinations of displays and sources within the matrix, with input/output selections states able to be saved and previously saved states loaded in to the switch.



1	Input port selection 1 ~ 8 – red when selected
2	Previous/next selection buttons - scrolls numerically between input sources
3	Output ports selection blocks 1 ~ 8
4	Recalls previously saved output/input configurations by clicking State buttons 1 ~ 3
5	Save output/input configurations by clicking Save buttons 1 ~ 3
6	Selects a specific input port from 1 ~ 8 to be used for all output ports

Configuration Example – Selecting Inputs and Outputs

To select between Input ports (sources) for Output port 2 (display):

1 Input port 3 is selected in Output Block 2.



2 Click twice or press #5 directly to select Input port 5 for Output port 2.



3 To select the same Input port for all Output ports choose an Input port from the 'All Set' drop down box.

4 5 To save a configuration, click Save button 1, 2 or 3. Recall previously saved output/input configurations by clicking State button 1, 2 or 3.

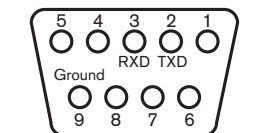
NOTE Only 3 configuration states can be saved or recalled – saving a configuration will automatically overwrite the previously saved state. This action cannot be undone.

6 To set all output ports to a particular input, select desired input port number 1-8 from the drop-down.

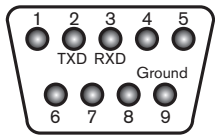
viii) Control Commands and Codes

COM Port Settings

The RS232 connection on the matrix is female DB9. Users can use a USB to UART cable or a direct serial cable for matrix control. See below for control system configuration.



Female connector - 9 holes



Male connector - 9 holes

Baud rate	9600bps
Data bits	8bits
Parity	None
Stop bits	1
Flow control	None

codes are identified in the same way.

Original Table

Output 1	<"08"	"09">					
1 "00"	2 "01"	3 "02"	4 "03"	5 "04"	6 "05"	7 "06"	8 "07"

Description Table

Output Port	Element	Description
Output 1	<	Indicates the operation of selecting the previous input source for Output 1.
	<"08"	<ul style="list-style-type: none"> Indicates the control code of "<". Sends the command cir 08"Enter" to select the previous input source for output 1.
	>	Indicates the operation of selecting the next input source for output 1.
	>"09"	<ul style="list-style-type: none"> Indicates the control code of ">". Sends the command cir 09"Enter" to select the next input source for output 1.
	1	Indicates the operation of selecting input source 1 for output 1.
	1"00"	<ul style="list-style-type: none"> Indicates the control code of "1". Sends the command cir 00"Enter" to select the input source 1 for output 1.
	2	Indicates the operation of selecting input source 2 for output 1.
	2"01"	<ul style="list-style-type: none"> Indicates the control code of "2". Sends the command cir 00"Enter" to select the input source 1 for output 1.
Other control command codes are similarly defined		

Command Format

For reference - the command format to be input is: Type "cir" - followed by a "space" - then the "code number" – and hit the "Enter" key.

For example, the command cir 39 + "Enter", will tell the matrix to select the next input source for output 4. See Matrix Control Codes section below for more details on code numbering

Matrix Control Codes

Command code input in the COM Control software follows a strict format for commands to be understood by the system. Care must be taken when inputting and checking code, with codes double-checked for input accuracy if commands are not accepted or incorrectly actioned by the matrix or control system.

Output 1	<"08"	"09">					
1 "00"	2 "01"	3 "02"	4 "03"	5 "04"	6 "05"	7 "06"	8 "07"

Output 2	<"18"	"19">					
1 "10"	2 "11"	3 "12"	4 "13"	5 "14"	6 "15"	7 "16"	8 "07"

Output 3	<"28"	"29">					
1 "20"	2 "21"	3 "22"	4 "23"	5 "24"	6 "25"	7 "26"	8 "27"

Output 4	<"38"	"39">					
1 "30"	2 "31"	3 "32"	4 "33"	5 "34"	6 "35"	7 "36"	8 "37"

Output 5	<"48"	"49">					
1 "40"	2 "41"	3 "42"	4 "43"	5 "44"	6 "45"	7 "46"	8 "47"

Output 6	<"58"	"59">					
1 "50"	2 "51"	3 "52"	4 "53"	5 "54"	6 "55"	7 "56"	8 "57"

Output 7	<"68"	"69">					
1 "60"	2 "61"	3 "62"	4 "63"	5 "64"	6 "65"	7 "66"	8 "67"

Output 8	<"78"	"79">					
1 "70"	2 "71"	3 "72"	4 "73"	5 "74"	6 "75"	7 "76"	8 "77"

Configuration Example - Control Code Introduction

Using Output1 as an example to explain control code definition and application – all other control command

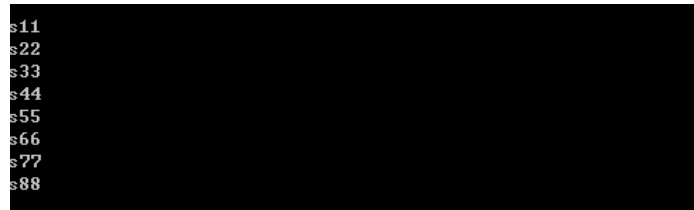
If a control command is successfully sent to the device via the COM control software, the current output state selected will feedback to show the input port selected. The following table shows the return status format:

S	X1	X2	\r	\n
---	----	----	----	----

For example, if cir 51"Enter" is sent successfully to the matrix, it will feedback "s62", meaning output 6 has selected input 2.

Read Status Command

The command length of the read status is 4 bytes. Type "bc" - followed by a "space" - and hit the "Enter" key.



Example:

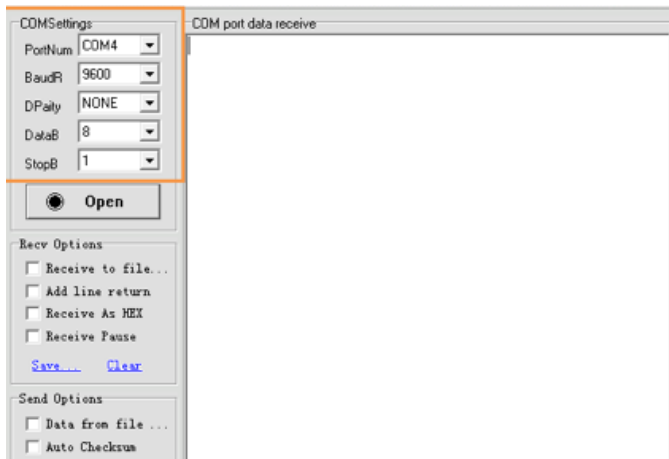
Inputting bc + "enter" will feedback the current status of all outputs, such as:

"s11\r\n", "s22\r\n", "s33\r\n", "s44\r\n", "s55\r\n", "s66\r\n", "s77\r\n", "s88\r\n".

Definition: Output 1 selects Input 1, Output 2 selects Input 2 etc.

To read the current status of all outputs using the COM debug software:

- 1** Launch the COM debug software.
- 2** Configure the COM settings.

**x. LAN Control**

The WyreStorm MX-0808-4K can also be controlled via LAN over a network/web browser, offering integration protocols and full compatibility with market leading control systems such as AMX, Control 4, Crestron, RTI and WyreStorm Enado.

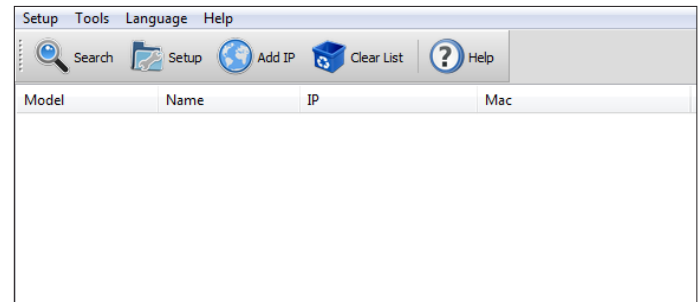
! Use a 'straight through' Ethernet cable for switch/router connection and a 'cross-over' cable for connection to a PC. Using the incorrect cable will not damage your equipment, but it may result in poor/no connection. Make sure that your LAN cable is correctly terminated and firmly connected to ports before running the software.

For LAN control functionality the IP address of the matrix needs to be obtained, which can be achieved a number of ways:

- 1 Method 1:** Connect the matrix to a network via good quality Ethernet cable and use a PC to scan the local network to identify the IP address of the matrix using third party software.

Method 2: Use the software interface of the specific router or switch being used to find the matrix connected to it.

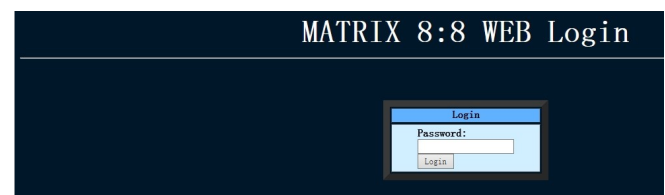
Method 3: Use SmartSet GUI, which is available to download from the WyreStorm website.



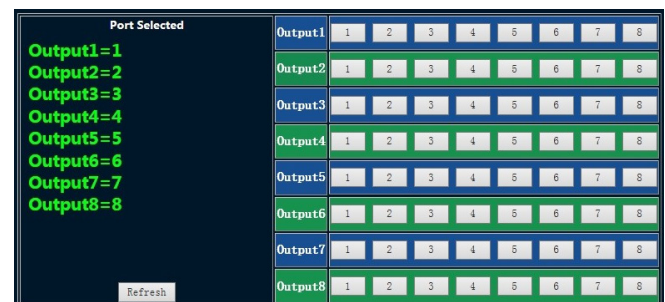
- 2** There is a simple switching interface via web page embedded in the matrix LAN board, which can be accessed by typing the obtained IP address into a web browser.

NOTE Supported browsers are Internet Explorer, Chrome, Safari and Firefox - always ensure you are running the latest version of your browser.

- 3** Your browser will direct you to a Web Log in page to access the switching interface in your internet browser.



- 4** Enter the default password of ten zeros '0000000000' and click to take you to the LAN matrix controller screen.



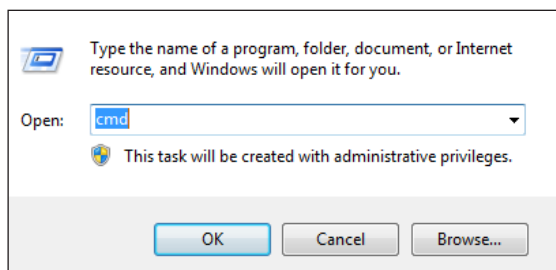
The LAN matrix controller interface enables the selection

of input ports (grey buttons) to output ports (blue/green rows).

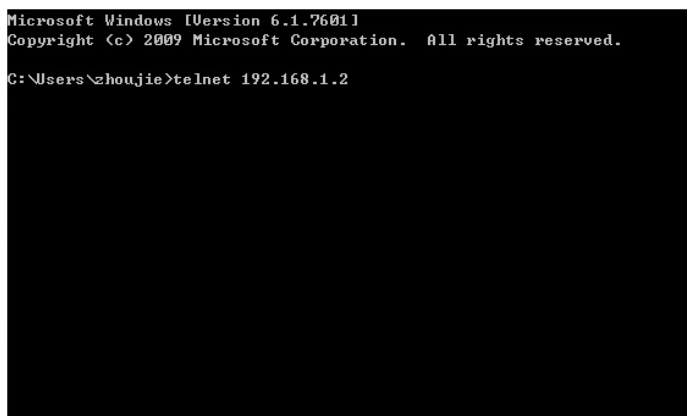
Operation is the same as COMCTL – select an input button 1-8 in each output section for selections to take effect and selected results displayed on the left hand side of the screen.

xi. TELNET

For access to the matrix using Telnet, following steps below (**NOTE: Window 7 is used here as an example**)



- 1 Click Start menu, go to Run. Input cmd, click OK.



- 2 Input telnet 192.168.1.2, press Enter.

Telnet control the matrix is activated - refer to Control Command Format.

For TELNET Control, the matrix IP address is as follows

12. EDID Management

About EDID

EDID (Extended Display Identification Data) is data generated from each display in the system to communicate the capabilities of the device (720p, 2ch Audio, 1080p, 7.1ch Audio).

For communication between devices to be made, and successful connection achieved, devices must both request and send the required information. For example, a display will communicate 1080p capability with 2ch audio, which the source device will accept and output the correct format for the display.

Problems can arise when different types of devices such as displays, sources and amplifiers are used within a system, making communication between them that much more challenging and sometimes resulting in compatibility issues.

In such instances EDID needs to be streamlined or guided for all devices to work together, with a matrix perfectly placed to handle this process as communication between display and source is the most important in the system.

The effective control and management of EDID is essential for the success of any integration, with this being achieved in most cases using the default setting on the matrix itself.

Before EDID Adjustment

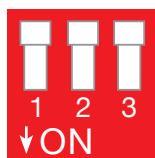
Communication between display, matrix and source devices should be automatically negotiated with the EDID DIP switch set to the default Normal Output (OFF) position. However, should device communication or compatibility issues be encountered during installation, please refer to the EDID DIP settings below.

If the maximum capabilities of the display are known, for example 1080p with 7.1ch audio, the DIP switch setting can be adjusted manually for matching EDID to be sent to the matrix.

If the specification of the display is not known, simply copy the EDID from the display to matrix through the HDMI connection by setting all switches to the EDID Copy (ON) position and power cycling the matrix for the DIP setting to become active.

i) EDID Presets

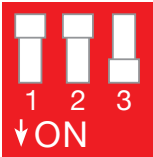
NOTE DIP Switch Down denotes ON / DIP Switch UP denotes OFF. Matrix must be restarted for changes to DIP switch to take effect.



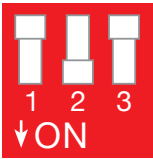
Default EDID Setting

Copy HDMI display device EDID to the currently selected input port. EDID can be copied by pressing buttons on front panel or refer to EDID SET

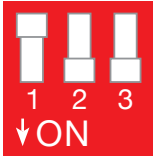
Default EDID is 1080p 3D stereo audio



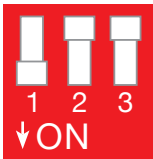
1080p 3D stereo audio



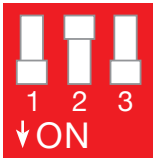
1080p stereo audio



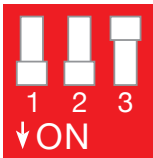
1080i stereo audio



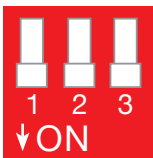
1080p 5.1 audio



1080p 7.1 audio



4K UHD, 2.1 audio



Reserved (no function)

ii) Copying Output Port EDID

Before copying output port EDID, ensure the matrix port is connected to a display - EDID copy will fail without connection to output device.

Example: To copy EDID from an HDMI display connected to matrix output port 1 to input port 2:

1 Set EDID DIP switch 1, 2 and 3 to the UP position to activate EDID Copy mode as per setting below.



Default EDID Setting
Copies HDMI display EDID to the selected input port

2 Reboot the matrix.

3 Press the selection buttons on the matrix front panel

to select input port 2 on output port 1 > the number LED number indicator will blink to confirm action.

4 Press and hold the Enter button for approximately five seconds until the message CPY OK is displayed to confirm EDID copy is successful.

5 To apply EDID of the other HDMI displays to all the input ports, set the EDID DIP switch to the required position and reboot the matrix for the setting to take effect.

6 Output port EDID can also be copied to input ports using the COM Control software. See EDID Settings for details.

13. Troubleshooting

Generally, the majority of HD distribution installation issues are either caused by minor connection errors, communication problems between devices, or when the transmission of high signal bandwidth is attempted using insufficient cable.

Should you encounter any technical difficulties when installing and configuring the matrix, we are confident solutions can be found by working through the following troubleshooting checklist before seeking alternative technical support.

No Picture or Poor Quality Picture

1) Power – Are all sources, displays and matrix definitely powered and firmly connected? Please use matrix power supply included.

2) If possible, always use test equipment prior to installation and to troubleshoot any problems.

3) Distance – Is the cable too long for the signal to be transmitted effectively? Make sure the cable distance matches the project requirements and is well within the maximum transmission distance of the signal. See Specification section for details.

NOTE If approaching the limits of the transmission capabilities, transmission should be extended by using an extender set to ensure the signal reaches its destination effectively.

4) Cable Joins – If using an extender set to lengthen transmission, joins in the cable run or RJ45 connectors

can impact on signal strength, resulting in reduced transmission that may manifest itself in incorrect picture quality, picture dropping out or a complete lack of picture.

5) Cable Choice and Signal Reduction – Ensure good quality high speed HDMI 1.4v cables are used, with care taken to avoid bending, twisting, snagging or any other form of obstruction to the cable that may interfere with successful transmission of an HDMI signal - we recommend using WyreStorm Express HDMI cables.

If using an extender set to lengthen transmission between matrix and display, please note that the use of stranded patch leads as interconnects between patch panels or wall outlets or the use of CCA (Copper Clad aluminium) cables can reduce transmission rates by up to 40%. We recommend solid core straight through with minimum connections used wherever possible.

6) Correct connection – It may seem obvious but double check all cables are fully inserted and connected to the correct ports.

NOTE Even a fraction off can be the difference between a perfect picture and a blank screen. Double check all connections are firmly made in the correct ports.

7) Cable wired to 568B standard? If using an UTP extender to lengthen transmission from the matrix, check the cable wired and terminated correctly and are those terminations connected to the correct ports? Incorrect wiring and termination will result in unstable operation or a blank screen.

8) Electrical interference – Could any form of electrical or environmental interference be generated that may be effecting signal transmission? If so, attempt to remove the source of interference or move the cable run to decrease the effects of the interference.

9) Is a picture achieved when connecting the source directly to the display? If not then the problem could lie with the input or output device rather than the means of distribution.

10) HDMI lead condition and quality – HDMI cables and connectors are delicate and can be damaged much easier than component or coax cable. Furthermore, lead quality varies dramatically, particularly in lower price brackets. Swap HDMI leads and check operation – damage to or quality of your leads could be the problem. If in doubt, swap them over. Always take care inserting

and extracting your HDMI from matrix ports so as not to damage the connectors or ports.

11) Picture speckles/HD ‘noise’ – represents a poorly established signal that may be caused by poor quality or excessive HDMI cable lengths. Try swapping the display adaptors from a location that is functioning properly or swapping the outputs of the matrix switch used.

If the problem remains on the same screen this may be caused by a connection problem between matrix and display – turn off all equipment and swap the signal carrying cables at both ends to ascertain if the cable or termination is at fault.

HD Noise (NO image) may be an HDCP Issue between the source and display but poor cabling can also cause this due to poor communication.

12) Blu-ray: 3D – is the equipment used 3D enabled/ compatible? Is a 3D disc being played in a 3D enabled Blu-ray player or through a compatible AV receiver?

13) 4K - Are you trying to pass a 4K signal? Ensure connected devices are 4K enabled, correctly configured and outputting compatible transmissions.

4K resolution - ensure all connected devices are compatible with the UHD or DCI resolutions being transmitted. See Specification section for more details

1080p - 1920x1080p, 60Hz (if problems are experienced at 60Hz, try lowering to 50Hz)

Combined 4K / HD distributions - a WyreStorm EXP-CON-4K-DD scaler may be required between receiver and display to scale down 4K transmissions to 1080p 24fps for HD screens and upscale 1080p to 4K 30Hz for UHD displays.

14) Colour distortion – a pink or green screen indicates an incompatibility between colour spacing formats – the commonly used RGB or YUV used by older displays. Some sources allow switching between RGB and YUV which may solve any colour problems. If not, try changing the HDMI cable between the source and the matrix to rule out defective cabling.

No Sound or Poor Quality Audio

Audio is transmitted within the video signal – there is no separate audio track – so generally a problem with sound will be accompanied by a problem with picture. However,

if technical issues with audio are experienced, the cause is typically communication between sources, displays and/or AV receiver settings.

1) Have specific speaker sets or zones been enabled?

Some AV receivers allow individual speaker selections assigned to specific zones in the set up so check the speakers used are fully connected to the amplifier and correctly assigned within the system set up. It may be an EDID issue in that the source reads the audio EDID from the display and only requests two channel audio.

Use of MX-0808-4K EDID management to manually copy EDID from the AVR may be required.

See EDID section of this manual or contact tech support for assistance if required.

NOTE If problems are experienced when an AV receiver is used, the cause is usually the settings of the AVR itself.

Refer to the AVR manufacturer's guidelines on the correct settings to use for your requirements.

2) Consistency of audio output between devices – Is there any discrepancy between the audio output of the source, the audio or zonal settings of the AV receiver and the speaker configuration used needed for successful audio replication? If outputting 7.1, make sure all devices connected are also outputting 7.1

NOTE Occasionally with some sources, the device settings allow the specification of audio output through a TV or an HDMI port. If using an AV receiver, check the HDMI output option is selected.

3) Do all the local sources work through the AV receiver?

Check the operation of each source individually.

Bandwidth

1) If using a graphics-based source (such as a PC/Mac/ media server), make sure the source resolution is set to a maximum of 4096x2160p 30Hz. Higher resolutions available for graphics-based systems require higher bandwidth that may affect transmission of signals as well as incompatibility with devices.

IR

1) Check the IR receiver windows on source, display and matrix (or the IR EXT receiver, if used) is unobstructed and

able to receive a signal from the remote handset used to control.

NOTE Locate the infrared sensor by using a flashlight to find the sensor within the device facia.

2) Is the remote handset powered and sending a signal?

IR is invisible to the naked eye, so use a digital camera/ phone camera to check the remote signal – point the camera at the remote control when pressing a button. The remote transmitter can be seen flashing to indicate a signal being sent. Replace batteries if flashing is not seen on the digital camera screen.

3) Cable Issues – check or replace cables at source, matrix and display ends transmitter and receiver ends to see if control is established.

4) Are WyreStorm products being used? The use of third party products may not be compatible. Always use WyreStorm components included with your purchase or check compatibility of third party control systems with your WyreStorm dealer.

5) IR dropout - can also be due to exterior influences emitting infrared radiation that can interrupt IR signals. Ensure IR receiving windows are away from the following causes of IR interference.

- Direct sunlight, Fluorescent lighting (on cold start up)
- Halogen lighting
- Plasma screens

14. FAQ

Are WyreStorm products compatible with HDMI 1.4?

HDMI 1.4 refers to a list of 'features' that a device is capable of supporting, including Ethernet channel, return audio channel, 3D etc. Due to the continuously evolving nature of the technology, HDMI Licensing LLC have now decided to simplify terminology by testing and referring to cable in terms of STANDARD or HIGH-SPEED rather than in generations 1.3, 1.4 etc.

- STANDARD (or "category 1") HDMI cables perform at speeds of 75Mhz or up to 6.75Gbps, which is the equivalent to a 720p/1080i signal – These HDMI cables are NOT recommended.
- All WyreStorm equipment supports HIGH-SPEED (or "category 2") HDMI cables that have been tested to perform at speeds of 340Mhz or up to 10.2Gbps.

This is the highest bandwidth currently utilized over an HDMI cable and can successfully handle 1080p signals including those at increased color depths and/or increased refresh rates from the source and 4K resolutions at 30Hz, 4:4:4 color.

High-Speed cables are also able to accommodate higher resolution displays, such as WQXGA cinema monitors (resolution of 2560 x 1600).

We recommend WyreStorm Express high-speed HDMI cables.

What about screens with different resolution capabilities?

When sending a signal point to point a TV will communicate it's capabilities to the source, then the source will output a suitable signal that compatible (i.e. 1080p Stereo audio).

When sending distributing a signal point to point or through a matrix, care should be taken to ensure compatibility between the source device and connected displays. A central element of the EDID 'handshake' between devices is the display communicating its resolution/audio capabilities back to the source, which will then output a suitable signal if compatible.

Problems can arise if sources and displays of varying resolution capacities are connected, such as 4K and HD sources, connecting through the matrix to 4K and 1080p screens. This can either result failed transmission delivery to screens or in reduced resolutions across all displays, regardless of the source selected as sources will output the most compatible signal that can be supported by all screens.

Check settings of sources and displays for compatibility - if combining 4K and HD sources and displays within one system, use a WyreStorm EXP-CON-4K-DD scaling device between matrix and display to up/downscale signals as required.

How does the device handle with HDCP?

HDCP (High Definition Copyright Protection) is a feature built in to HDMI devices to prevent theft of or illegal distribution of HD content.

Unlike competing products, WyreStorm products are legal and comply with HDCP regulations.

They do this by assigning a "key" to every display connected to the device. HDCP "keys" are assigned to a display when connected to a HDMI device normally. This

doesn't change when connected through a switcher or splitter; it just assigns more of them.

I can get 1080p but not 4K at a TV location

Firstly ensure that both the source is capable of outputting 4K and that the TV is a UHD screen. If this is the case then the matrix may require EDID management setting using DIP switches (See EDID section of this manual).

This useful feature provides a successful "send and receive" to ensure swift and stable EDID negotiation between the source and display.

See Troubleshooting section for more tips on problem solving.

I cannot get a signal from my A/V receiver when using a Cat 5e extender set

Check to ensure that the A/V Receiver isn't adding CEC (HDMI Control Protocol) to the outgoing signal, this can sometimes have an effect on the HDMI signal.

15. Maintenance

Clean this unit with a soft, dry cloth only. Never use alcohol, paint thinner or other harsh chemicals.

16. Provided Service

1. Damage requiring service: This unit should be serviced by a qualified service personnel if:

- The DC power supply or AC adaptor has been damaged.
- Objects or liquid have gotten into the unit.
- The unit has been exposed to rain.
- The unit does not operate normally or exhibits a marked change in performance.
- The unit has been dropped or the cabinet damaged.

2. Servicing Personnel: Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorised servicing personnel.

3. Replacement Parts: When parts need replacing, ensure parts approved by the manufacturer are used – either those specified by the manufacturer or parts possessing the same characteristics as the original parts. Be aware – unauthorised substitutes may result in fire, electric shock, or other hazards and will invalidate your warranty.

4. Safety Check: After repairs or service, ask the service personnel to perform safety checks to confirm the unit is in proper working condition.

When shipping the unit, carefully pack and send it prepaid, with adequate insurance and preferably in the original packaging.

Please include a document or letter detailing the reason for return and include a daytime telephone number and/or email address where you can be contacted.

17. Mail-in-service

If repair is required during the limited warranty period, the purchaser will be required to provide a sales receipt or other proof of purchase, indicating date and location of purchase as well as the price paid for the product. The customer will be charged for the repair of any unit received unless such information is provided.

18i. Warranty

Should you feel your product does not function adequately due to defects in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of purchase) either:

- a) Repair the product with new or refurbished parts.
or
- b) Replace it with a new or refurbished product.

Limited warranty period:

This WyreStorm product is covered by a 2 year PARTS and LABOUR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of product if necessary.

The decision to repair or replace will be made by the warrantor. The purchaser must mail-in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferable to subsequent owners, even during the warranty period.

A purchase receipt or other proof of original purchase date is required for the limited warranty service.

18ii. Warranty Limits & Exclusions

1. This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship and DOES NOT COVER normal wear and tear or cosmetic damage.

The limited warranty also DOES NOT COVER damage that occurs in shipment or failures caused by products not supplied by the warrantor, failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, incorrect installation, set-up adjustment, implementation of/to consumer controls, improper maintenance, power line surge, lightening damage, modification, service by anyone other than a manufacturer-approved service centre or factory-authorised personnel, or damage attributable to acts of God.

2. There are no express warranties except as listed under “limited warranty coverage.” The warrantor is not liable for incidental or consequential damage resulting from the use of this product or arising out of any breach of this warranty.

For example: damages for lost time, the cost of having a person/persons remove or re-install previously installed equipment, travel to and from service location, loss of or damage to media, images, data or other recorded/stored content. The items listed here are not exclusive, but are for illustration only.

Parts and service not covered by this limited warranty are not the responsibility of the warrantor and should be considered the responsibility of the individual.

WyreStorm will not be liable for any use of this information or any changes it may make to those products. The use of this information constitutes an agreement by the user to these limitations and exclusions.

19. Glossary

Acronym	Complete Term
AC	Alternating Current
COM	Communication Port
DHCP	Dynamic Host Configuration Protocol
DIP	Dual In-line Package
DTS	Digital Theater Systems
DVD	Digital Versatile Disc
EDID	Extended Display Identification Data
GUI	Graphical User Interface
HD	High Definition
HDCP	High-bandwidth Digital Content Protection
HDMI	High Definition Multimedia Interface
IR	Infrared
LAN	Local Area Network
LED	Light Emitting Diode
LPCM	Linear Pulse-code Modulation
PC	Personal Computer
PCM	Pulse-code Modulation
TV	Television
UART	Universal Asynchronous Receiver/ Transmitter

20. Disclaimer

WYRESTORM PUBLICATION DISCLAIMER

The material contained in this document consists of information that is the sole property of WyreStorm. This document is intended to provide information to allow interfacing to the relevant WyreStorm equipment by third party products.

WYRESTORM IS NOT RESPONSIBLE FOR MALFUNCTIONS AND/OR THE IN-OPERABILITY WHICH MAY BE CAUSED BY THE APPLICATION OF THIS INFORMATION, WHETHER EXPECTED OR NOT.

WyreStorm reserves the right to change software, control codes and specifications without notice.

21. Installation Reference Log

INPUT				
Input Number on Matrix	Source Location	Source Details	Source resolution/audio settings	Cable Number
1				
2				
3				
4				
5				
6				
7				
8				

OUTPUT				
Output Number on Matrix	Display Location	Display Details	Source resolution/audio settings	Cable Number
1				
2				
3				
4				
5				
6				
7				
8				

22. Installation Notes



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