4K HDR 4:4:4 60Hz HDBaseT™ Matrix Switchers with Toslink Zone Audio De-Embed Outputs

MXV Full Product Range

WyreStorm

Quickstart Guide

💡 WyreStorm recommends reading through this document in its entirety to become familiar with the product's features prior to starting the installation process.

⚠️ **IMPORTANT! Installation Requirements**
- Visit the product page to download the latest firmware, document version, additional documentation, and configuration tools.
- Read through the Wiring and Connections section for important wiring guidelines before creating or choosing premade cables.
- While this product supports CEC for the HDMI outputs, WyreStorm cannot guarantee compatibility with all forms of CEC communication.

In the Box
1x MXV Matrix Switcher
1x AC Power Cord with US/UK/EU/AU pins
1x IR Remote (CR2025 Battery not Included)
4/6/8x IR Emitters
4/6/8x IR Receivers
2x Matrix Mounting Brackets with screws
1x Quickstart Guide (this document)

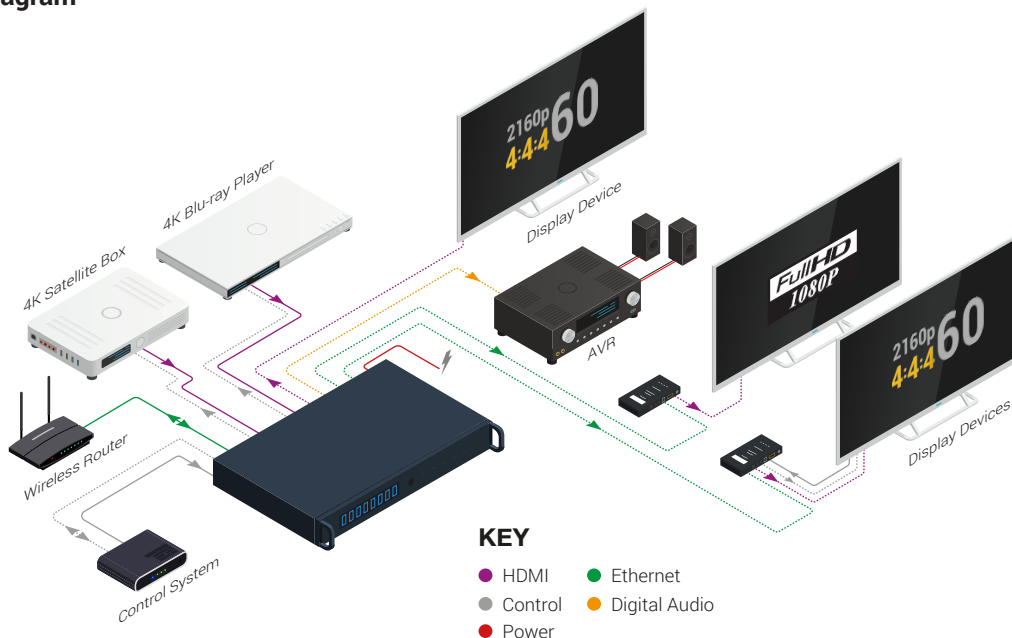## Additional In the Box (KIT)
2x Standard HDBaseT Receivers
2x Scaling HDBaseT Receivers
1x IR Receiver for Matrix IR Ext.
8x Receiver Mounting Brackets with screws (2 per RX)

Identifying Product Versions
These products have been released under multiple versions which contain either different chassis designs and/or feature sets. Content within this QSG is for the version 2 or newer of these products. Information on other versions can be found within the matching QSG. Each product version is identified by a v# after the product number on the product and outer packaging. Note that a version of these products may not contain this identifier while all versions above v1 will have the version indicated.

Basic Wiring Diagram

KEY
- 🟣 HDMI
- 🟢 Ethernet
- ⚪ Control
- 🟠 Digital Audio
- 🔴 Power

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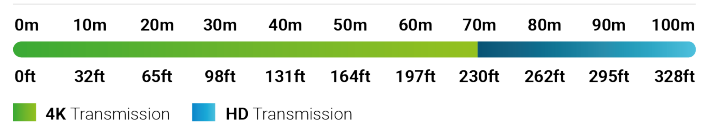support@wyrestorm.com

Wiring and Connections

WyreStorm recommends that all wiring for the installation is run and terminated prior to making connections to the switcher. Read through this section in it's entirety before running or terminating the wires to ensure proper operation and to avoid damaging equipment.

⚠️ **IMPORTANT! Wiring Guidelines**

- The use of patch panels, wall plates, cable extenders, kinks in cables, and electrical or environmental interference will have an adverse effect on signal transmission which may limit performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends the use of shielded category cable to minimize signal noise and interference.
- WyreStorm recommends using pre-terminated HDMI cables due to the complexity of these connector types. Using pre-terminated cables will ensure that these connections are accurate and will not interfere with the performance of the product.

Cat6 Cable Performance Guide

0m	10m	20m	30m	40m	50m	60m	70m	80m	90m	100m

0ft	32ft	65ft	98ft	131ft	164ft	197ft	230ft	262ft	295ft	328ft

🟩 4K Transmission   🟦 HD Transmission

WyreStorm recommends the use of shielded cable to minimize signal noise and interference

IR TX/RX Guidelines

- Using WyreStorm infrared emitters and receivers is the best way to ensure that most IR coding formats are transmitted and received by the NetworkHD system. Other 3rd party emitters and receivers can be used; however, these devices must operate in the same manner as the WyreStorm devices.
- Due to differences in IR across 3rd party control systems their IR ports should never be connected directly to a NetworkHD system as an incompatibility may exist. WyreStorm offers a cable that compensates for voltage differences as well adjusts for differences in the pins used within the port. Refer to the CAB-IR-LINK product page for more information.
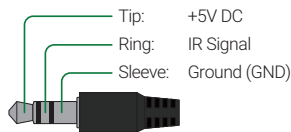
IR TX Port Pinout

Connection for IR TX (transmit) uses a 3.5mm (1/8in) mono plug.

Tip: Anode
Sleeve: Cathode (IR Signal)

IR RX/IR EXT Port Pinout

Connection for IR RX (receive) uses a 3.5mm (1/8in) stereo jack that outputs +5V DC to power the included IR receiver.

Tip: +5V DC
Ring: IR Signal
Sleeve: Ground (GND)

IR Code Settings

This matrix has 2 different IR code sets to help alleviate interference with devices that may contain a similar IR code. These various code sets can be set within the units web UI should the need arise to change them. We recommend that the IR code set be left to default unless absolutely required to resolve a code sharing issue.

1. Access the Web UI. Refer to Accessing the Web UI.
2. Navigate to the Settings tab within the Admin section of the Web UI. Default password is admin.
3. Under IR Code select one of the available IR code sets. Mode 1 (0x00) is the default setting.

RS-232 Wiring

Most control systems and computers are DTE where pin 2 is RX, this can vary from device to device. Refer to the documentation for the connected device for pin functionally to ensure that the correct connections can be made.

WyreStorm Connector			3rd Party Device
Pin 2	TX (Transmit)	---> To --->	RX (Receive)
Pin 3	RX (Receive)	---> To --->	TX (Transmit)
Pin 5	G (Ground)	---> To --->	G (Ground)

Note: Pins not shown in table have no connection.

Setup and Configuration

Setup for this matrix including EDID is performed within the Web UI. Refer to Accessing the Web UI for details.

Accessing the Web UI

This matrix uses an Auto IP method to generate the initial IP address based on the network connections. By default the IP address is set to DHCP and will pull the IP address from a connected DHCP server. Should the network not contain a DHCP server the IP address will be generated based on the units mac address. The above operation will occur unless the IP Address setting in the web UI is set to static.

1. Connect the matrix to the same network as a PC.
2. Using a 3rd party network scanner, scan the network for the IP address of the matrix.
3. Open a web browser and enter the IP Address of the matrix.
4. Enter the password for the matrix. Default Password: admin

IP Address Notes

- The IP address of the unit can be displayed by pressing and holding the **UP** and **Down** buttons on the front panel for 3 seconds. The IP address will be displayed on the front panel.
- The installer password and general password are the same by default. WyreStorm recommends changing the password for installer login to avoid any unwanted changes being made to the matrix configuration.

Low Power Mode (Standby)

This matrix contains a Low Power Mode that will place the unit into Standby using less power than normal operating mode. While in this mode the Front Panel display and LEDs will be Off and outputs will be powered down. Once a command is sent via the Front Panel buttons, IR remote/control system, or RS-232/IP control system the unit will wake from Standby and be fully operational. The unit can be placed back into standby via the Web UI or by sending an API command as described in the following sections.

Enabling Low Power Mode via Web UI

1. Access the Web UI. Refer to Accessing the Web UI.
2. Navigate to the Settings tab within the Admin section of the Web UI. Default password is admin.
3. Under Low Power Mode, select On to enable.

Enabling via RS-232/IP

Refer to the products API document for information on Com port and IP addressing settings.

- To place the unit into Standby send the command STANDBY<CR><LF>.
- To remove the unit from Standby send the command WAKE<CR><LF>.
- To query the current Standby state send the command GET STANDBY<CR><LF>.

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that A/V mute is not enabled. Check Web UI for status on the selected output
- Verify that the matrix is not in Standby. Refer to Low Power Mode (Standby) for details
- Verify that power is being supplied to the transmitter and receiving device.
- Verify that all HDMI and HDBaseT connections are not loose and are functioning properly
- Verify that the HDBaseT cable is properly terminated following EIA568B standard
- Verify that the output resolution of the source and display is supported by this matrix and recevier
- If transmitting 3D or 4K, verify that the HDMI cables used are 3D or 4K rated

No or Intermittent 3rd party Device Control

- Verify that the IR and RS-232 cables are properly terminated following the Wiring and Connections section.
- Change the matrix IR code set in order to avoid interference with other devices. Refer to IR Code Settings.

Troubleshooting Tips:

- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.

Warranty Information

WyreStorm Technologies LLC warrants that its products to be free from defects in material and workmanship under normal use for a period of five (5) years from the date of purchase. Refer to the Product Warranty page on wyrestorm.com for more details on our limited product warranty.

Specifications

	MXV-0404-H2A-KIT	MXV-0408-H2A	MXV-0606-H2A/70	MXV-0808-H2A/70
Audio and Video				
Inputs	4x HDMI In: 19-pin type A	4x HDMI In: 19-pin type A	6x HDMI In: 19-pin type A	8x HDMI In: 19-pin type A
Outputs	4x Audio Out: RCA Female Stereo (L/R) 4x S/PDIF Out: RCA Female 4x HDBT Out: 8-pin RJ-45 (RXV-35-SCL) 2ch 3.5mm (1/8in) TRS Stereo | S/PDIF audio	6x HDBT Out: 8-pin RJ-45 8x S/PDIF Out: TOSLINK 2x HDMI Out: 19-pin type A	6x HDBT Out: 8-pin RJ-45 6x S/PDIF Out: TOSLINK 4x HDMI Out: 19-pin type A	8x HDBT Out: 8-pin RJ-45 8x S/PDIF Out: TOSLINK 4x HDMI Out: 19-pin type A
Output Video Encoding	HDBaseT			
Encoding Data Rate	9.2Gbps			
End to End Latency (Max)	10µs (micro seconds)			
Audio Formats	Analog: 2ch Analog S/PDIF: 2ch LPCM | Dolby Digital and DTS up to 5.1ch HDMI: 2ch LPCM | Multichannel up to Dolby Atmos and DTS-X			

Video Resolution	HDMI	MXV Cat6	MXV-70 Cat6
1920x1080p @120Hz 12bit	7m/23ft	35m/115ft	70m/230ft
3840x2160p @60Hz 8bit 4:4:4	7m/23ft	35m/115ft	70m/230ft
3840x2160p @60Hz 10bit 4:2:0 HDR	3m/10ft	35m/115ft	70m/230ft
4096x2160p @60Hz 8bit 4:4:4	7m/23ft	35m/115ft	70m/230ft

Video Resolutions (Max)

Note: WyreStorm recommends the use of shielded category cable to minimize signal noise and interference. Cat6a/7 cabling can support an additional 5m transmission distance of 4K content.

Supported Standards	DCI | RGB | HDR | HDR10 | Dolby Vision up to 30Hz | HLG | BT.2020 | BT.2100
Maximum Pixel Clock	HDMI: 600MHz | HDBaseT: 297MHz
Communication and Control	
HDMI	HDMI 2.0 | HDCP 2.2 | EDID Input supports DVI/D and DisplayPort Dual-Mode (DP++) v1.3 with adapter (not included)
HDBaseT	HDMI 2.0 | HDCP 2.2 | EDID | CEC | 1-way PoH | Bidirectional IR | Custom CEC power triggering via API (v3 models only)
CEC	Custom (v3 models only) and Standard CEC power triggering via API | Requires CEC compatibility

	MXV-0404-H2A-KIT	MXV-0408-H2A	MXV-0606-H2A/70	MXV-0808-H2A/70
IR	1x IR Ext: 3.5mm (1/8in) TRS Stereo 4x IR RX: 3.5mm (1/8in) TRS Stereo 4x IR TX: 3.5mm (1/8in) TS Mono Bidirectional over HDBaseT	6x IR RX: 3.5mm (1/8in) TRS Stereo 4x IR TX: 3.5mm (1/8in) TS Mono Bidirectional over HDBaseT	6x IR RX: 3.5mm (1/8in) TRS Stereo 6x IR TX: 3.5mm (1/8in) TS Mono	8x IR RX: 3.5mm (1/8in) TRS Stereo 8x IR TX: 3.5mm (1/8in) TS Mono Routable RS-232 Device Control (v3 models only)
RS-232	1x RS-232: 9-pin DB9 Female | Matrix Control Routable RS-232 Device Control (v3 models only) Telnet commands supported			
Ethernet	1x LAN: 8-pin RJ-45 Female | Web UI | Matrix Control			
Power				
Power Supply	100~240V AC 50/60Hz			
Max Power Consumption	85W	124W	137W	169W
Environmental				
Operating Temperature	0 to + 45°C (32 to + 113 °F), 10% to 90%, non-condensing			
Storage Temperature	-20 to +70°C (-4 to + 158 °F), 10% to 90%, non-condensing			
Maximum BTU	290 BTU/hr	424 BTU/hr	467.5 BTU/hr	577 BTU/hr
Dimensions and Weight (Max)				
Rack Units/Wall Box	1U			
Height	43.5mm/1.72in			
Width	440mm/17.33in			
Depth	300mm/11.82in			
Weight	5.34kg/11.75lbs			
Regulatory				
Safety and Emission	CE | FCC | RoHS | EAC | RCM			

Note: WyreStorm reserves the right to change product specification, appearance or dimensions of this product at any time without prior notice.