

Custom 4K HDR Video Matrix with Audio Matrix & DSP

MX-1010-H2XC | MX-1616-H2XC

WyreStorm

Quickstart Guide

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

IMPORTANT! Installation Requirements

- Visit the product page to download the latest firmware, document version, additional documentation, and configuration tools.
- Install the latest firmware to ensure that all features described in this document are available during and after installation.
- Read through the [Wiring and Connections](#) section for important wiring guidelines before creating or choosing premade cables.

Recommended Products

To take full advantage of the features of this matrix, WyreStorm recommends the following products be used within this product.

RX-70-4K-SCL

Scaling receiver that allows for 4K and 2K screens to be used while maintaining output of 4K.

RX-70-4K-ARC

HDCP 2.2 receiver with audio in to send audio from built in apps back to the matrix.

RXF-300-4K

For use with TX-H2X-OM3 when duplex OM3 Multimode fiber is required.

RXV-70-4K

For use when content too high in bandwidth for HDBaseT is required, such as high-framerate HDR or 4:4:4/60.

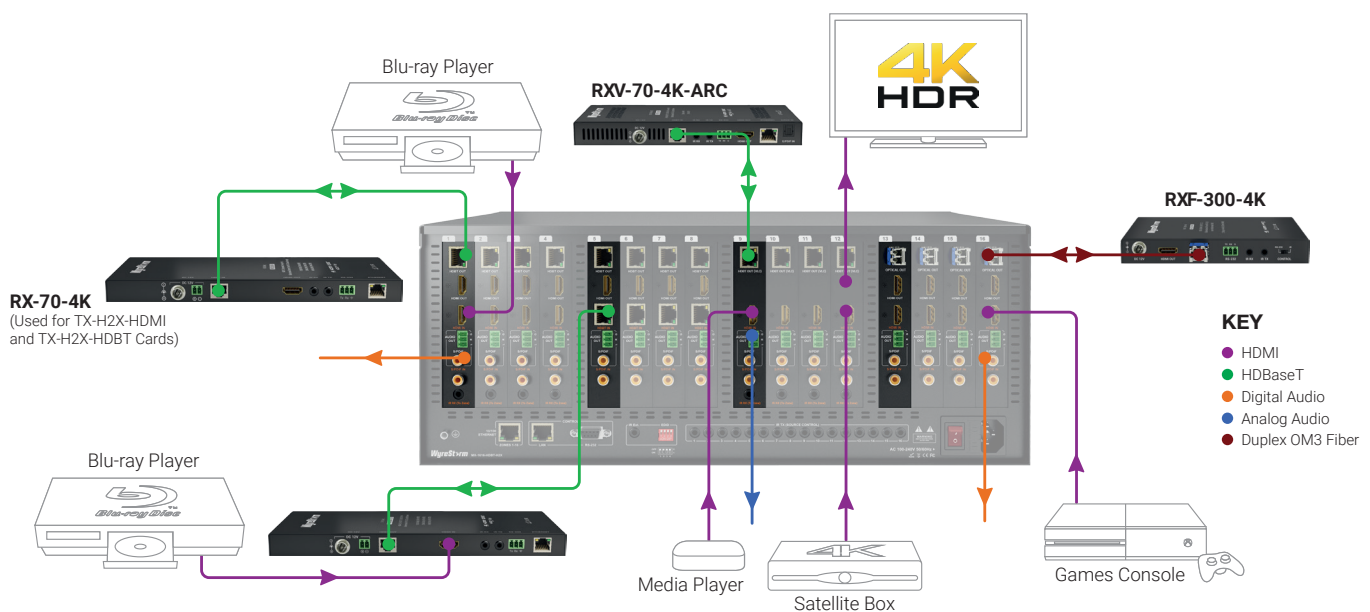
In the Box

- 1x MX-1010-H2XC or MX-1616-H2XC
- 1x Handheld IR Remote (CR2025 Battery not Included)
- 10/16x IR emitters
- 10/16x IR Broadband Receiver (30KHz to 50KHz)
- 1x IR Receiver (38KHz)
- 10/16x 3-pin phoenix to stereo RCA sockets
- 1x AC Power Cord with US Plug
- 1x AC Power Cord with UK Plug
- 1x AC Power Cord with EU Plug
- 1x USB to UART Serial Cable
- 2x 4U Rack Ears and Screws
- 1x Quickstart Guide (This Document)

Additional Information

Visit the product page on wyrestorm.com to download additional documentation, control drivers, and configuration software.

Basic Wiring Diagram



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 its entirety before running or terminating any wires to ensure proper operation and to avoid damaging the equipment.

HDMI/HDBaseT Wiring

⚠ 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 HDMI and Ethernet transmission limiting performance. Steps should be taken to minimize or remove these factors completely during installation for best results.
- WyreStorm recommends using high quality HDMI cables such as WyreStorm Express to ensure the highest content performance available.
- The type of category cable and length used can restrict the available video resolution. While Cat5e can be used, WyreStorm recommends using Cat6 or higher to ensure the highest content performance available. See Video Resolutions in the [Specifications](#) table before determining cable type and length.

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			

OM3 Cable Performance Guide

0m	30m	60m	90m	120m	150m	180m	210m	240m	270m	300m
0ft	98ft	196ft	295ft	394ft	492ft	590ft	689ft	787ft	886ft	984ft
4K Transmission										

IR TX/RX Wiring

⚠ IMPORTANT! IR TX/RX Guidelines

- WyreStorm IR ports function differently than standard IR ports. For this reason only WyreStorm IR emitters and receivers can be used.
- WyreStorm IR emitter and receiver cables cannot be spliced as cutting into the cables will short the shield. While an extension cable may be used, WyreStorm assumes no responsibility for operation using an extension cable.
- When connecting the IR TX to an IR connecting blocks or control system with different plugs, a cable must be made following the [IR TX Port Pinout](#) diagram.
- When connecting to an IR control system use the WyreStorm CAB-IR-LINK cable. This cable compensates for differences between the WyreStorm RX and the control systems TX connection. Visit the [CAB-IR-LINK](#) product page for details.

IR TX Port Pinout

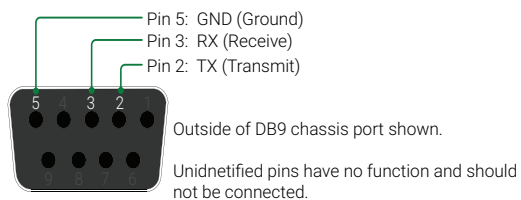


IR RX/Ext Port Pinout

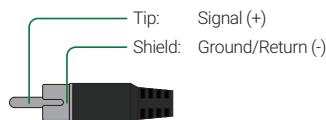


RS-232 Wiring

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.



Audio Wiring



EDID Settings

EDIDs can be configured to resolve issues with video output on displays that may not accept the maximum resolution available from the source.

- When set to Smart EDID (default) the matrix will scan all selected displays for the lowest resolution to dynamically adjust the source content to allow output on 2K and 4K displays sharing the same source.
- When EDID Copy or a direct EDID is being used, SmartEDID is turned Off.
- Ensure that a display is connected and powered On to the selected output before copying EDIDs or the copy will fail. When this occurs, EDID will be set to 4K@30Hz 2ch.
- Power to the matrix must be cycled (Off/On) after changing dip switches in order for the setting to take effect.



Copying EDIDs

1. Set the EDID dipswitch to the **Front Panel, Web UI or API EDID Control** (all switches up).
2. Reboot the matrix.
3. Using the front navigation buttons, select the input port for the output.
Example: Input 2 for Output 2
4. Once the output port indicator blinks, press and hold Enter for 5 seconds. OK indicates that the copy was successful, FL-2 indicates that the copy failed.
5. Reboot the matrix

Note: EDID settings may also be configured using the Web UI. Refer to the [Accessing the Web UI](#) section.

SmartEDID/Front Panel/ Web UI	4K UHD	1080p	Standard Video
Smart EDID-Display Lowest Resolution - 2ch only (default)	4K @60Hz 2ch No HDR	1080p @60Hz 7.1ch	1920x1200 2ch
Front Panel, Web UI or API EDID Control	4K @30Hz 5.1ch With HDR	1080p @60Hz 5.1ch	1920x1200 No Audio
	4K @30Hz 7.1ch With HDR	1080p @60Hz 2ch	
	4K @30Hz 2ch With HDR		
	4K @30Hz 8bit 2ch No HDR		

Accessing the Web UI

This matrix is set to a default static IP Address (192.168.11.143). In order to communicate with it initially the PC must be set to a 192.168.11.xxx address with a subnet of 255.255.0.0. This can be changed back once a static IP is set within a different range.

1. Connect the matrix to the same network as a PC.
2. Open a web browser and enter the IP Address of the matrix.
Default: 192.168.11.143 | Password: admin

Note: 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.

Troubleshooting

No or Poor Quality Picture (snow or noisy image)

- Verify that power is being supplied to all devices in the system and that they are powered on.
- Verify that all source and HDBaseT connections are not loose and are functioning properly.
- Verify that the HDBaseT cable is properly terminated per the [HDMI/HDBaseT Wiring](#) section.
- Verify that the matrix, receiving device, and display support the output resolution of the source. Refer to **Video Resolutions** in the [Specifications](#) table for the max distance based on resolution.
- 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 cable(s) is properly terminated.
See [IR TX/RX Wiring](#).
- Verify that the IR emitter is located near the IR receiver on the device.



Troubleshooting Tips:

- WyreStorm recommends using a cable tester or connecting the cable to other devices to verify functionality.
- Use a flashlight to locate the IR receiver behind any tinted panels on the device being control

Specifications

Audio and Video					
Inputs	Up to 16x HDMI In 19-pin type A Up to 16x HDBaseT In 8-pin RJ-45 female Up to 16x S/PDIF In Coaxial Digital				
Outputs	Up to 16x HDBaseT Out 8-pin RJ-45 female Up to 16x HDMI Out 19-pin type A (Mirrors HDBaseT) Up to 16x Optical Out: SFP+ Up to 16x S/PDIF Out Coaxial Digital Up to 16x Audio Out 3pin Phoenix Connector				
Output Video Encoding	HDBaseT Class A OM3 via SFP+				
Encoding Data Rate	9.2Gbps				
End to End Latency	10μs (micro seconds)				
Audio Formats	S/PDIF: 2ch PCM Multichannel: Up to 5.1 DTS and Dolby Digital HDMI: 2ch PCM Multichannel: LPCM and Up to DTS-X and Dolby Atmos Analog: 2ch				
Video Resolutions (Max)	Resolution	HDMI	Cat6	Cat6a/7	MM OM3
	1920x1080p @60Hz 12bit	15m/49ft	100m/328ft	100m/328ft	300m/984ft
	1920x1080p @60Hz 16bit	7m/23ft	100m/328ft	100m/328ft	300m/984ft
	3840x2160p @24Hz 10bit 4:2:0 HDR	3m/10ft	70m/230ft	100m/328ft	300m/984ft
	3840x2160p @30Hz 8bit 4:4:4	7m/23ft	70m/230ft	100m/328ft	300m/984ft
	3840x2160p @60Hz 10bit 4:2:0 HDR	3m/10ft	NA	NA	300m/984ft
	4096x2160p @60Hz 8bit 4:2:0	7m/23ft	70m/230ft	100m/328ft	300m/984ft
	4096x2160p @60Hz 8bit 4:4:4	7m/23ft	NA	NA	300m/984ft
	Long Cable Mode Forced Resolution: 1920x1080p @60Hz 12bit	NA	140m/460ft	140m/460ft	NA
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 HDCP 2.2 EDID DVI/D supported with adapter (not included)				
HDBaseT	HDMI HDCP 2.2 EDID ARC 1-way PoH to Receiver Bidirectional IR and Ethernet				
Ethernet	1x 8-pin RJ-45 female Web UI IP Control Bidirectional over HDBaseT				
IR	1x IR Ext - 3.5mm (1/8in) TRS Stereo Matrix Control 10/16x IR RX - 3.5mm (1/8in) TRS Stereo 10/16x IR TX - 3.5mm (1/8in) TS Mono Transmits to over HDBaseT				
RS-232	Matrix Control Bidirectional over HDBaseT Firmware Updates				
Audio Return Channel (ARC)	Returns audio from displays built-in applications via ARC HDMI Input over HDBaseT				
Power					
Power Supply	100~240V AC 50/60Hz				
PoH	48V Each HDBT Outputs: 15.4W All Outputs: 95W				
Max Power Consumption	Default Configuration: 200W Note: Power Consumption increases by +11W for each optional TX-H2X-HDBT card installed. Max of 6 TX-H2X-HDBT cards can be used within a single matrix when using PoH.				
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	682 BTU/hr				
Dimensions and Weight					
	MX-1010-H2XC		MX-1616-H2XC		
Rack Units/Wall Box	4U		4U		
Height With Without Feet	183.1mm/7.22in 176mm/6.93in		183.1mm/7.22in 176mm/6.93in		
Width With Without Brackets	483mm/19.02in 440mm/17.33in		483mm/19.02in 440mm/17.33in		
Depth With Without Handles	420.7mm/16.57in 382.7mm/15.07in		420.7mm/16.57in 382.7mm/15.07in		
Weight	15.6kg/34.32lbs		15.6kg/34.32lbs		
Regulatory					
Safety and Emission	CE FCC RoHS				

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

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](https://www.wyrestorm.com) for more details on our limited product warranty.

