**Custom 4K HDR Video Matrix with Audio Matrix & DSP**  
**MX-1010-H2XC | MX-1616-H2XC**

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**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  
- 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](http://wyrestorm.com) to download additional documentation, control drivers, and configuration software.

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**Basic Wiring Diagram**

![Basic Wiring Diagram](attachment:image.png)

**KEY**

- **HDMI**
- **HDBaseT**
- **Digital Audio**
- **Analog Audio**
- **Duplex OM3 Fiber**

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

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.

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.

### 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.

### 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.

### 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.
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

Audio and Video
Inputs
- Up to 16x HDMI In19-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)

<table>
<thead>
<tr>
<th>Resolution</th>
<th>HDMI</th>
<th>Cat6</th>
<th>Cat6a/7</th>
<th>MM OM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920x1080p @60Hz 12bit</td>
<td>15m/49ft</td>
<td>100m/328ft</td>
<td>100m/328ft</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>1920x1080p @60Hz 16bit</td>
<td>7m/23ft</td>
<td>100m/328ft</td>
<td>100m/328ft</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>3840x2160p @24Hz 10bit 4:2:0 HDR</td>
<td>3m/10ft</td>
<td>70m/230ft</td>
<td>100m/328ft</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>3840x2160p @30Hz 8bit 4:4:4</td>
<td>7m/23ft</td>
<td>70m/230ft</td>
<td>100m/328ft</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>3840x2160p @60Hz 10bit 4:2:0 HDR</td>
<td>3m/10ft</td>
<td>NA</td>
<td>NA</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>4096x2160p @60Hz 8bit 4:2:0</td>
<td>7m/23ft</td>
<td>70m/230ft</td>
<td>100m/328ft</td>
<td>300m/984ft</td>
</tr>
<tr>
<td>4096x2160p @60Hz 8bit 4:4:4</td>
<td>7m/23ft</td>
<td>NA</td>
<td>NA</td>
<td>300m/984ft</td>
</tr>
</tbody>
</table>

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: 6000MHz | 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
- Rack Units/Wall Box: 4U
- Height With | Without Feet: 183.1mm/7.22in | 176mm/6.93in
- Width With | Without Brackets: 483mm/19.02in | 440mm/17.33in
- Depth With | Without Handles: 420.7mm/16.57in | 382.7mm/15.07in
- Weight: 15.6kg/34.32lbs

MX-1616-H2XC
- Rack Units/Wall Box: 4U
- Height With | Without Feet: 183.1mm/7.22in | 176mm/6.93in
- Width With | Without Brackets: 483mm/19.02in | 440mm/17.33in
- Depth With | Without Handles: 420.7mm/16.57in | 382.7mm/15.07in
- Weight: 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.