

# WyreStorm<sup>®</sup> Express

## WYRESTORM EXPRESS™ HDMI DOLBY DOWNMIXER WITH STEREO AUDIO OUT & 4K SCALING

EXP-CON-4K-DD



4K ULTRA HD HDMI HDCP 3D

Manufactured under license from Dolby Laboratories

- HDMI input with 5.1 Dolby Digital signal, can be downmixed to stereo PCM audio output via HDMI and stereo-mini outputs.
- Upscales 1080/24p content to 4K/30p for use with 4K displays and non-4K sources.
- Downscales 4K/30p content 1080/24p for use with 1080p displays and 4K sources.

## WyreStorm Express™ HDMI Dolby Downmixer with Stereo Audio Out & 4K Scaling

### EXP-CON-4K-DD

#### INTRODUCTION

UltraHD may have arrived but not everyone will ditch their existing HD screens overnight so the ability to support a combination of 4K and 1080p HD displays within the same distribution is an important consideration, especially given the resolution conflicts that effect systems including screens of different capabilities.

Placed between a display and a source device, this EXP-CON-4K-DD video scaler and digital audio converter (DAC) is designed to adjust the resolution and audio from an incoming HDMI source and scale output to a level compatible with display capabilities.

The EXP-CON-4K-DD represents the ideal solution to the growing challenge of how to simply and reliably accommodate both HD and 4K sources and displays within a multi-zone residential or commercial distribution.

#### FEATURES

- In-line scaling solution for installations including 4K and HD displays without compromising source resolution
- 4K/30p to 1080/24p Downscale - to enable 1080p screens to view 4K sources through a 4K matrix system
- 1080/24p to 4K/30p Upscale - for connection to 4K screens
- Supports resolutions up to 4096x2160p @24/25/30Hz
- Full 3D support up to 1080p/24hz
- Downmix incoming Dolby Digital to stereo PCM audio where required through HDMI output
- Supports up to 6 channels (up to 5.1 surround) of audio encoded in Dolby Digital
- Low-latency digital filtering
- Manufactured under license from Dolby Laboratories
- Accepts uncompressed digital audio input signals
- Audio breakout for stereo audio
- Includes digital interpolation filter
- Auto-samples at frequencies of 32, 44.1 and 48KHz
- Supports audio signals up to 24bit with sampling rates up to 192KHz
- THD+N (Total harmonic distortion plus noise) rating: -93db
- Switchable input selection for video/audio scaling or signal pass-through
- Equalizes and boosts HDMI signal for longer distance transmissions
- Compact design
- LED power indication

## SPECIFICATIONS

<b>Dimensions (WxHxD):</b>	65mm/2.55" x 23mm/0.9" x 77mm/3.03"
<b>Weight:</b>	105g / 0.23lbs
<b>Operating Temperature Range:</b>	0 to +35°C (32 to +95°F)
<b>Operating Humidity Range:</b>	5 to 90 % RH (no condensation)
<b>Power Supply:</b>	5v DC / 5W power supply (CE/FCC certified)
<b>Power Consumption:</b>	Max 1Amp @ 5V / 5W
<b>Input:</b>	HDMI V1.4a
<b>Output:</b>	HDMI V1.4a
<b>Max Video Clock Speed:</b>	Input: 300Mhz, Output: 300Mhz
<b>Video Amplifier Bandwidth:</b>	10.2Gbps
<b>Video Impedance:</b>	100Ω
<b>Input Video Signal:</b>	0.5 - 1.2V p-p
<b>Input DDC Signal:</b>	5 volts p-p (TTL)
<b>Maximum Single Link Range:</b>	2160/30 @ 24bit True Color - 1080/24p @ 36bit Deep Color
<b>Transmission Distance:</b>	Input - 7m/22ft (4K), 10m/33ft (1080p), Output - 7m/22ft (4K), 10m/33ft (1080p)
<b>Max In/Out Resolution Supported:</b>	up to 4096 x 2160p @ 24/25/30Hz
<b>Color Supported:</b>	4K/24bit, 1080p/36bit
<b>3D Supported:</b>	up to 1080/24p - Frame packing/sequential (Blu-ray), Interlaced stereoscopic (satellite/cable broadcasts)
<b>Scale Video Up from:</b>	1920x1080p @ 24/25/30Hz to 3840x2160p @ 24/25/30Hz
<b>Scale Video Down from:</b>	4096x2160p @24/25/30Hz to 1920x1080p @24/25/30Hz
<b>Additional:</b>	HDMI 2.0 4096 x 2160p 60Hz YCC 4:2:0 format pass through
<b>Audio Input Format:</b>	5.1 Dolby Digital or 2ch Stereo PCM
<b>Audio Output Format:</b>	Passthrough or 2ch PCM with Downmix selected
<b>ESD Protection:</b>	±8 kV (Air-gap discharge) ±4 kV (Contact discharge)
<b>Surge Protection:</b>	IEC 61000-4-4 (EFT) 40A (5/50ns) IEC 61000-4-5 (Lightning) 25A (8/20µs)
<b>Electrical Fast Transient/Burst:</b>	Data communication cord: 1 kV Power cord : 2 kV
<b>Certification:</b>	CE, FCC, RoHS, Dolby Digital

Visit [wyrestorm.com](http://wyrestorm.com) for further product information including details on safety, troubleshooting and warranty.

# AV ESSENTIALS, MADE SIMPLE

## CONNECTION

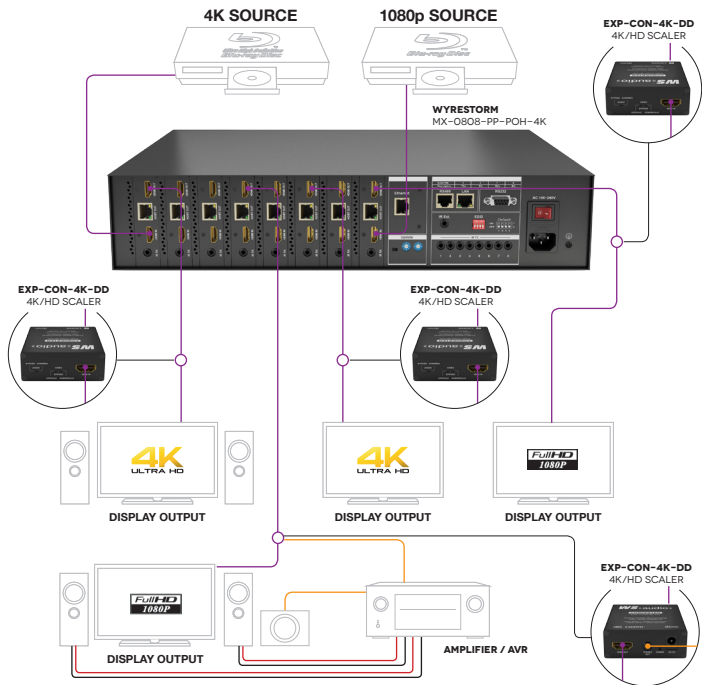
- 1** Carefully connect good quality HDMI cables from the 4K source/4K matrix to the HDMI IN of the EXP-CON-4K-DD and from HDMI OUT to the local display with care taken not to force connections to ports.
- !** **Do not exceed recommended HDMI cable distances:**  
**Input - 7m/22ft (4K), 10m/33ft (1080p)**  
**Output - 7m/22ft (4K), 10m/33ft (1080p)**
- N** **Ensure any 4K or Dolby equipped source is configured correctly to output 4K video and Dolby Digital audio – refer to manufacturer guidelines if unsure.**
- 2** If connecting to an analog stereo audio device, connect a 3.5mm mini jack to the STEREO OUT port.
- 3** Insert the 5V power adaptor into the DC 5V port and connect to wall outlet main power supply.
- 4** After ensuring source and display are properly connected, turn on the main power to the EXP-CON-4K-DD.
- N** **Ensure POWER LED is illuminated on the unit - If not, check the DC power supply.**

## OPERATION

As the EXP-CON-4K-DD features various combinations of video and audio scaling, function is achieved by setting the AUDIO and VIDEO switches on the front of the unit to different position combinations:

Function	Video	Audio
Downscale 4K/30p source to 1080/24p display with multichannel audio	DOWNSCALE	BYPASS
Downscale 4K/30p source to 1080/24p display with multichannel audio downmixed to 2ch stereo	DOWNSCALE	DOWNMIX
Upscale 1080/24p source to 4K/30p display with multichannel audio	UPSCALE	BYPASS
Upscale 1080/24p source to 4K/30p display with multichannel audio downmixed to 2ch stereo	UPSCALE	DOWNMIX
4K/30p source to 4K/30p display, 1080/24p source to 1080/24p display with multichannel audio	BYPASS	BYPASS
4K/30p source to 4K/30p display 1080/24p source to 1080/24p display with multichannel audio downmixed to 2ch stereo	BYPASS	DOWNMIX

## TYPICAL APPLICATION



HDMI Cable Performance Guide											EXP-CON-4K-DD
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

## TROUBLESHOOTING

Generally, the majority of AV 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 or exceeding distance capabilities of the cable. Should you encounter any technical difficulties when installing this product, solutions can be found by working through the following troubleshooting checklist before seeking alternative technical support.

**1) Power** – is your unit powered with LED indication? Check connectivity.

**NOTE: This device is not compatible with 5V USB power - please use included power adaptor only.**

**2)** Check display device supports HDCP, is switched to the correct source input mode and is compatible with connected devices - if any issue is suspected, replace display with another model.

**3) Distance** – Is the HDMI cable too long for the signal to be transmitted effectively? Check Specification for HDMI input and out transmission distance capabilities and do not exceed recommended distances.

**NOTE: If approaching limits of the HDMI transmission capabilities between source/receiver and display, up to 3 units can be daisy-chained to extend transmission.**

Care should be taken that only the final unit in the chain has the settings on - previous units should be set to PASSTHROUGH.

**4) Correct connection** – double check all HDMI, power and audio mini-jack cables are connected to the correct ports. Even a fraction off can be the difference between a perfect picture and a blank screen.

**5) HDMI lead condition and quality** - Swap HDMI cables and check operation – damage to or quality of your cables could be the problem. Always take care inserting and extracting your HDMI cables from ports so as not to damage the connectors or ports.

**6) 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 any matrix switch used. 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.

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

**8) 4K** - Are you trying to upscale 1080i such as a Sky or Cable box to 4K? this cannot be achieved with only a 1080i source/signal.

**See Specification section for more details**

**9) Color distortion** – a pink or green screen indicate incompatibility between color spacing formats. Some sources allow switching between RGB and YUV which may solve any color problems. If not, try changing the HDMI cable between the source and the matrix to rule out defective cabling.

**10) Poor Quality or No Audio** – As audio is transmitted within the video signal any problem with sound will usually 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.

**11)** Check displays and sources are outputting the same audio EDID and set scaler accordingly. If converting Dolby multichannel audio to stereo audio, check the switch has been set to DOWNMIX on the unit. For connection to multichannel display zones, the BYPASS setting should be used.

**12)** Check consistency of audio output between devices – If outputting 5.1, make sure all devices connected are also outputting 5.1

## SAFETY RECOMMENDATIONS:

- Do not expose this apparatus to any form of moisture, including the placement of anything containing liquids on the unit.
- To prevent risk of electric shock or fire hazard, ensure apparatus is installed in an unobstructed, well ventilated area away from any external heat sources - including other electrical devices which may produce heat.
- Only use attachments / accessories specified by the manufacturer and refer all servicing to qualified service personnel.
- Failure to adhere to these recommendations may invalidate your warranty.

## WARRANTY INFORMATION



This product is covered by a 1 year limited parts and labor warranty. During this period there will be no charge for unit repair, component replacement or complete product replacement in the event of malfunction. The decision to repair or replace will be made by the manufacturer.

This limited warranty only covers defects in materials or workmanship and excludes normal wear and tear or cosmetic damage.

Visit our website for further details on this product and to download the full instruction manual including additional troubleshooting, safety and warranty information.



## **WyreStorm Offices**

### **North America Office**

Tech Valley Park, 23 Wood Road, Round Lake, NY 12151, USA

### **EMEA/ROW Office**

Unit 22, Ergo Business Park, Swindon, Wiltshire, SN3 3JW, UK

EMEA/ROW Support +44 (0) 1793 230 343

North America Support +1 844-280-WYRE (9973)

Email: [support@wyrestorm.com](mailto:support@wyrestorm.com)

WyreStorm reserve the right to change product specification, appearance or dimensions at any time without notice.