

## 2-Channel HDMI® 4K60 4:4:4 HDR Scaling Output Card for DM® Switchers

- Modular output card for card-based DigitalMedia™ switchers
- Handles UHD and 4K video resolutions up to 4K60 4:4:4
- Handles HDR (High Dynamic Range) video (HDR10) and Deep Color
- Provides two independent HDMI® outputs
- Includes a discrete 4K60 4:4:4 scaler for each HDMI output
- Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio
- HDCP 2.2 compliant
- Supports video wall configurations of up to 8 x 8
- Provides an analog stereo audio output for each HDMI output
- Audio de-embedding of stereo 2-channel audio signals
- Enables device control via CEC (Consumer Electronics Control)
- Occupies a single DM® switcher output card slot

The DMC-4KZ-HDO is an output card designed for use with card-based Crestron® DigitalMedia™ switchers (for example, the DM-MD8X8-CPU3). The card provides two independent HDMI® outputs with complementary analog stereo audio outputs. The HDMI outputs handle Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for HDCP 2.2, HDR10, Deep Color, and high-bitrate 7.1 audio. Built-in 4K60 4:4:4 scaling enables devices connected to the HDMI outputs to handle any video resolution from NTSC 480i to DCI 4K. DVI signals are also supported using an appropriate adapter or interface cable.<sup>1</sup>

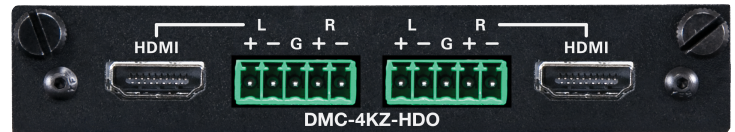
#### 4K60 4:4:4 and HDR Support

The DMC-4KZ-HDO incorporates DM 4KZ technology, which uses VESA® Display Stream Compression (DSC) to handle the extreme bandwidth requirement of resolutions beyond 4K30 4:4:4 and 4K60 4:2:0. DSC is a lightweight, line-based 2:1 compression standard that delivers visually lossless performance for 4K60 4:4:4 and HDR signals.<sup>2</sup> DSC is applied to 4K60 4:4:4 and HDR input signals only. All other signals are transported uncompressed.

An existing 4K DigitalMedia system can be upgraded to handle 4K60 4:4:4 and HDR video with the installation of DM 4KZ cards, transmitters, and receivers. The upgrade can be accomplished without the need to replace wiring or switchers. The DMC-4KZ-HDO can replace a DMC-4K-HDO output card in an existing installation (additional programming may be required).

#### 4K60 4:4:4 Scaler

An independent, high-performance 4K60 4:4:4 scaler is provided for each output to ensure that input sources of any resolution or frame rate can be routed and displayed reliably on virtually any display device without compromising the original input signal.



As part of a DM® switcher with many outputs, any video or computer source can be viewed simultaneously on multiple disparate displays, scaling the signal up or down to match the native resolution of each display.

Interlaced sources are converted to progressive scan using motion-adaptive deinterlacing. Intelligent frame rate conversion enables support for 24p and PAL format sources. Fully automatic operation eliminates any complicated setup by utilizing the EDID (Extended Display Identification Data) to configure each scaler.

#### Video Wall Processing

The DMC-4KZ-HDO provides zoom capability and bezel compensation on each HDMI output to display only a portion of the source image. Multiple DMC-4KZ-HDO cards can be combined to provide processing for a video wall composed of up to 64 individual displays. Video wall configurations up to 8 wide by 8 high are supported using a separate output for each display and one or more DM switchers.

#### Audio De-embedding

Each HDMI output on the DMC-4KZ-HDO is accompanied by a balanced/unbalanced analog audio output, allowing stereo audio signals to be extracted from the digital stream and fed to a sound system.<sup>3</sup> The output volume is adjustable via a control system using a keypad, touch screen, handheld remote, or mobile device.

#### CEC Embedded Device Control

When connected to a control system via a DM switcher, the DMC-4KZ-HDO provides a gateway for controlling display devices through CEC (Consumer Electronics Control) over the HDMI outputs, potentially eliminating the need for dedicated control wires or IR emitters.

To configure a DM switcher with input cards, output cards, cables, and other peripherals, use the online [DigitalMedia Switcher Configuration Tool](#).

Are you upgrading an existing DM switcher that has multi-gang DMCO Series output cards? Use the online [Output Card Additions and Upgrades Tool](#) to update your existing output cards and switcher to the single-gang output card format.

Refer to the DigitalMedia web page at <http://www.crestron.com/digitalmedia> for additional design tools and reference documents.

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## Specifications

## Video

**Scalers:** (2) 4K60 4:4:4 video scalers with motion-adaptive deinterlacer, intelligent frame rate conversion, Deep Color support, HDR10 support, content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), and video wall processing up to 8 wide x 8 high using multiple cards

**Output Signal Types:** HDMI with HDR10, Deep Color, and 4K60 4:4:4 support<sup>2</sup>

**Copy Protection:** HDCP 2.2

**Maximum Resolutions:** Common resolutions are shown below. Custom resolutions are supported at pixel clock rates up to 600 MHz.

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K and 3840x2160 4K UHD	24 Hz	4:4:4	36 bit
		30 Hz	4:4:4	36 bit
		60 Hz	4:2:2	36 bit
		60 Hz	4:4:4	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD 1080p	60 Hz	4:4:4	36 bit
Interlaced (input only)	1920x1080 HD 1080i	30 Hz	4:4:4	36 bit

## Audio

**Output Signal Types:** HDMI, analog stereo<sup>3</sup>

**Digital Formats:** Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels

**Analog Formats:** Stereo 2 channel<sup>3</sup>

**Digital-to-Analog Conversion:** 24-bit 48 kHz

**Analog Performance:**

**Frequency Response:** 20 Hz to 20 kHz ±0.5 dB

**S/N Ratio:** >95 dB 20 Hz to 20 kHz A-weighted

**THD+N:** <0.005% @ 1 kHz

**Stereo Separation:** >90 dB

**Analog Volume Adjustment:** -80 to 0 dB

## Communications

**HDMI:** HDCP 2.2, EDID, CEC

**NOTE:** Supports management of CEC between the connected HDMI devices and a control system.

## Connectors

**HDMI:** (2) 19-pin Type A connectors, female HDMI digital video/audio outputs (DVI compatible<sup>1</sup>)

**L, R:** (2) 5-pin 3.5 mm detachable terminal blocks  
Balanced/unbalanced stereo line-level audio outputs<sup>3</sup>  
Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced  
Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

## Construction

Plug-in card, occupies (1) DM switcher output card slot, includes metal faceplate with black finish

## Weight

10.7 oz (304 g)

## Available Models

**DMC-4KZ-HDO:** 2-Channel HDMI® 4K60 4:4:4 HDR Scaling Output Card for DM® Switchers

## Available Accessories

**CBL-HD-6:** Crestron® Certified HDMI® Interface Cable, 18 Gbps, 6 ft (1.8 m)

**CBL-HD-DVI-6:** Crestron® Certified HDMI® to DVI Interface Cable, 6 ft (1.8 m)

**CBL-HD-LOCK-8:** Locking High-Speed HDMI® Cable, 10.2 Gbps, 8 ft (2.4 m)

**MP-WP150-W:** Media Presentation Wall Plate - HDMI® with Mini-TRS Stereo Audio, White

**MP-WP152-W:** Media Presentation Wall Plate - HDMI®, White

**MPI-WP150-120:** Media Presentation Wall Plates – International Version - HDMI® with Mini-TRS Stereo Audio, White

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## Notes:

1. DVI is supported via either HDMI output with the use of an appropriate adapter or interface cable. [CBL-HD-DVI](#) interface cables are available separately.
2. 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps can be used. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
3. The analog stereo audio outputs are active only when the selected input source is transmitting a 2-channel stereo signal. For applications using multichannel surround sound sources, the DM switcher should be equipped with DSP type input cards, which can downmix the surround sound signals to stereo.

This product may be purchased from an authorized Crestron dealer. To find a dealer, contact the Crestron sales representative for your area. A list of sales representatives is available online at [www.crestron.com/How-To-Buy/Find-a-Representative](http://www.crestron.com/How-To-Buy/Find-a-Representative) or by calling 855-263-8754.

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