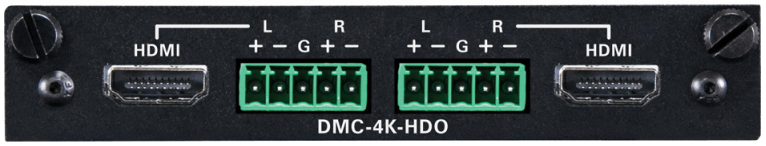
DMC-4K-HDO

2-Channel 4K Scaling HDMI® Output Card for DM® Switchers

- *Modular output card for a DM-MD8X8, DM-MD16X16, or DM-MD32X32 switcher*
- *Provides two independent 4K HDMI® outputs*
- *Includes a discrete 4K/60 scaler on each output*
- *Upscales video and computer sources to match the native resolution of any screen up to Ultra HD and 4K*
- *Downscales 4K, UHD, and ultra high-resolution computer signals to enable viewing on 1080p and lower-resolution displays*
- *Handles any input resolution from standard NTSC 480i or PAL 576i, to UHD and 4K*
- *Provides intelligent frame rate conversion*
- *Includes content-adaptive noise reduction*
- *Includes motion-adaptive de-interlacing*
- *Allows adjustable overscan or underscan up to 7.5%*
- *Provides automatic 3D to 2D signal conversion[2]*
- *Supports up to 8x8 video wall processing using multiple cards*
- *Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio*
- *HDCP 2.2 compliant*
- *Each output includes a balanced analog stereo audio output with volume control[4]*
- *Audio de-embedding allows extraction of stereo 2-channel audio signals*
- *Enables device control via CEC*
- *Occupies a single DM switcher output card slot*



The DMC-4K-HDO is an output card designed for use with any card-based Crestron® DigitalMedia™ Switcher. It provides two independent HDMI® outputs with complementary balanced analog stereo audio outputs. The HDMI outputs are each capable of handling Full HD 1080p, Ultra HD, 2K, and 4K video signals. Built-in 4K/60 scaling enables devices connected to either HDMI output to handle any video resolution from NTSC 480i to DCI 4K. DVI signals are also supported using HDMI-to-DVI adapters or interface cables.[1]

4K Ultra HD

The DMC-4K-HDO is capable of handling video resolutions up to 4K and Ultra HD. Support for 4K video also ensures support for the latest generation of computers and monitors with native resolutions beyond 1080p and WUXGA.

4K/60 Scalers

An independent, high-performance 4K scaler is provided at 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, this allows any video or computer source to be viewed simultaneously on multiple disparate displays, scaling the signal up or down to match the native resolution of each display.

No matter what source is selected, or where it's routed, the DMC-4K-HDO helps to ensure an optimal image on every screen. It can take any input resolution from standard definition NTSC 480i to ultra high-definition DCI 4K, and scale it beautifully to any output resolution up to DCI 4K (4096 x 2160 @ 60 Hz). Interlaced sources are converted to progressive scan using motion-adaptive deinterlacing. Intelligent frame rate conversion enables support for 24p and PAL format sources. 3D signals are converted to 2D.[2] Fully automatic operation eliminates any complicated setup by utilizing the displays' EDID to configure each scaler.[3]

Video Wall Processing

The DMC-4K-HDO has another trick up its sleeve, providing zoom capability and bezel compensation on each output to display just a portion of the source image. Using this feature, up to 32 output cards may be combined to provide processing for a video wall composed of up to 64 individual displays. Video wall configurations up to eight wide by up to eight high are supported.

Audio De-embedding

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

CEC Embedded Device Control

DigitalMedia offers an alternative to conventional RS-232 and IR display control by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to a control system (via the DM switcher), the DMC-4K-HDO provides a gateway for controlling display devices right through their HDMI connections, potentially eliminating the need for any dedicated control wires or IR emitters.

To configure a DM switcher complete with input and output cards, cables, and other peripherals, please use the online DigitalMedia Switcher Configuration Tool.

Are you upgrading an existing DM switcher that has older "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 new "single-gang" output card format.

Please refer to the DigitalMedia Resources Webpage at http://www.crestron.com/dmresources/ for additional design tools and reference documents.

DMC-4K-HDO 2-Channel 4K Scaling HDMI® Output Card for DM® Switchers

SPECIFICATIONS

Video

Scalers: (2) 4K video scalers with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, 3D to 2D conversion [2], content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), and video wall processing (up to 8 wide x up to 8 high using multiple cards)
Output Signal Types: HDMI w/Deep Color & 4K (DVI compatible [1])

Maximum Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K & 3840x2160 4K UHD	24 Hz	4:4:4	30 bit
		30 Hz	4:4:4	24 bit
		30 Hz	4:2:2	36 bit
		60 Hz	4:2:0	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD1080p	60 Hz	4:4:4	36 bit
Interlaced (Input only)	1920x1080 HD1080i	30 Hz	4:4:4	36 bit

NOTE: Common resolutions are shown; other custom resolutions are supported at pixel clock rates up to 300 MHz

Audio

Output Signal Types: HDMI, Analog Stereo [4]
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 [4]
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 HDCP and EDID; supports management of CEC between the connected HDMI devices and a control system

Connectors

HDMI: (2) 19-pin Type A HDMI, female;
Comprises (2) HDMI digital video/audio outputs;
(DVI compatible [1])

L, R: (2) 5-pin 3.5 mm detachable terminal blocks;
Comprises (2) balanced/unbalanced stereo line-level outputs [4];
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 w/black finish

Weight

6.2 oz (176 g)

MODELS & ACCESSORIES

Available Models

DMC-4K-HDO: 2-Channel 4K Scaling HDMI® Output Card for DM® Switchers

Available Accessories

CBL Series: Crestron® Certified Interface Cables
MP-WP Series: Media Presentation Wall Plates
MPI-WP Series: Media Presentation Wall Plates - International Version

Notes:

1. DVI is supported via either HDMI output using a suitable adapter or interface cable. CBL-HD-DVI interface cables are available separately.
2. Does not support pass-through or scaling of 3D signals. 3D signals are automatically converted to 2D, then scaled and output as 2D.
3. EDID (Extended Display Identification Data) is data embedded in an HDMI or DVI signal that enables a display device to tell the scaler what resolutions and formats it can support.
4. The analog stereo audio outputs are only active when the selected input source is outputting 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, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

Crestron, the Crestron logo, DigitalMedia, and DM are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby , Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDMI is either a trademark or registered trademark of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice.
©2016 Crestron Electronics, Inc.

Crestron Electronics, Inc. 15 Volvo Drive | Rockleigh, NJ 07647
Tel: 800.237.2041 / 201.767.3400 | Fax: 201.767.1903
www.crestron.com

All brand names, product names and trademarks are the property of their respective owners.
©2016 Crestron Electronics, Inc.

Specifications subject to change without notice. Revised 12/06/16