HDMI® 4K60 4:4:4 HDR Input Card w/Downmixing for DM® Switchers

> Modular input card for a DM-MD8X8, DM-MD16X16, or DM-MD32X32 switcher

> Provides a single 4K HDMI® input [2]

> Handles UHD and 4K video resolutions up to 4K60 4:4:4 [2]

> Handles HDR (High Dynamic Range) video (HDR10) [2]

> Handles 3D video and Deep Color

> Handles Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed 7.1 linear PCM audio

> HDCP 2.2 compliant

> Includes an HDMI output for pass-through of the input signal [2]

> Includes a stereo analog line-level audio output with volume control

> Allows de-embedding of stereo 2-channel audio signals

> Built-in downmixing enables simultaneous distribution of multi-channel surround sound and 2-channel stereo audio signals

> Provides up to 120 ms delay adjustment of the downmix signal

> Enables device control via CEC

> Enables USB HID signal extension for a local computer

> Compatible with Crestron USB over Ethernet Extenders [3]

> Occupies a single DM® switcher input card slot

> Provides an HDMI problem solving solution using the optional DMCI card interface [4]

The DMC-4KZ-HD-DSP is an input card designed for use with any card-based Crestron® DigitalMedia™ Switcher. It provides one HDMI® input, with complementary HDMI pass-through and analog audio outputs. A USB HID port is also provided. The HDMI input handles Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for HDCP 2.2, HDR10, Deep Color, 3D, and high-bitrate 7.1 audio. The HDMI input can also handle DVI and Dual-Mode DisplayPort signals using an appropriate adapter or interface cable. [1,2]

The DMC-4KZ-HD-DSP provides all of the features of the DMC-4KZ-HD with the addition of downmixing to enable the simultaneous distribution of multichannel 7.1 surround sound and 2-channel stereo signals. It is recommended for use with surround sound sources to allow the original multichannel signal to be distributed to rooms with surround sound systems, while simultaneously distributing a 2-channel downmix signal to stereo-only rooms and devices.

4K60 4:4:4 & HDR Support

Crestron DigitalMedia (DM) was the world's first AV signal distribution solution to deliver end-to-end 4K signal management for large-scale commercial and residential applications. DM "4KZ" cards and endpoints enable new and existing DM systems to handle full 4K60 4:4:4 video signals, as well as HDR video signals (HDR10), without having to replace any wiring or switchers. Any Crestron DM system that supports 4K can be upgraded to handle 4K60 4:4:4 and HDR by simply installing DM 4KZ based cards, transmitters, and receivers. The DMC-4KZ-HD-DSP is designed to replace an existing DMC-4K-HD-DSP or DMC-4K-HD-DSP-HDCP2 input card without requiring any extra configuration or programming. [2]

DM 4KZ technology employs VESA® Display Stream Compression (DSC) to enhance the capabilities of DigitalMedia 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. DSC is applied only to 4K60 4:4:4 and HDR input signals. All other signals are transported uncompressed.

HDMI® Pass-Through

Every DM switcher input card includes an HDMI output port, which can be used to pass the input signal through to a local audio processor or video monitor, or to feed a second DM switcher for output expansion purposes. [2]

Audio De-embedding and Downmixing

The DMC-4KZ-HD-DSP includes an unbalanced analog audio output, allowing stereo audio signals to be extracted from the digital input and fed to a multiroom audio distribution system. Built-in DSP allows multichannel surround sound signals to be decoded and downmixed to stereo. The stereo downmix signal is automatically routed to the analog output, and can also be routed via any switcher output for distribution to stereo-only displays and other equipment. The analog output includes volume control that is adjustable via a control system using a keypad, touch screen, handheld remote, or mobile device.

USB Signal Extension

Built-in USB HID signal routing allows a connected computer (or other USB HID-compliant host) to be controlled by a mouse and/or keyboard located at a presentation lectern, conference table, or some other remote location. Additional USB devices of virtually any type can be supported using Crestron USB over Ethernet Extender Modules (USB-EXT-DM-LOCAL and USB-EXT-DM-REMOTE). [3]

CEC Embedded Device Control

For controlling third-party AV devices, DigitalMedia offers an alternative to conventional IR, RS-232, and Ethernet by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to a Crestron control system (via the DM switcher), the DMC-4KZ-HD-DSP provides a gateway for controlling the connected source device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters.

Standalone HDMI Problem Solver

In addition to its use as an input card for DM switchers, the DMC-4KZ-HD-DSP may also be used with the DMCI DigitalMedia Card Interface [4] to provide a handy problem-solving tool with many useful functions. It can be used to extract an analog audio signal from an HDMI stream, to downmix surround sound signals to stereo, to provide a gateway for CEC device control, and to extend a USB HID mouse/keyboard signal over Ethernet. It can also be used to detect a device's video and audio information, manage its EDID, and assess its HDCP capabilities.

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

SPECIFICATIONS

Video

Input Signal Types: HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support [2] (DVI & Dual-Mode DisplayPort compatible [1])
Output Signal Types: HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support [2] (DVI compatible [1])
Copy Protection: HDCP 2.2

Maximum Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K & 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 HD1080p	60 Hz	4:4:4	36 bit
Interlaced	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 600 MHz

Audio

Input Signal Types: HDMI (Dual-Mode DisplayPort compatible [1])
Output Signal Types: HDMI (multichannel pass-through from input), analog stereo (2-channel downmix of input signal), routes simultaneous multichannel and 2-channel downmix signals to the switcher backplane
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, DTS:X, LPCM up to 8 channels
Analog Format: Stereo 2-channel
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
Downmix Delay Adjustment: 0.0 to 120.0 ms

Communications

USB: Supports signal extension of USB HID class devices, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM Series USB over Ethernet Extenders [3]
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 OUT: (1) HDMI Type A connector, female; HDMI digital video/audio output [2]; (DVI compatible [1])

HDMI IN: (1) HDMI Type A connector, female; HDMI digital video/audio input [2]; (DVI and Dual-Mode DisplayPort compatible [1])

USB HID: (1) USB Type B connector, female; USB device port for connection to the USB host interface of a computer or other USB HID-compliant host

AUDIO OUT: (2) RCA connectors, female; Unbalanced stereo line-level audio output; Output Impedance: 100 Ohms nominal; Maximum Output Level: 2 Vrms

Construction

Plug-in card, occupies (1) DM switcher input card slot, includes metal faceplate w/black finish

Weight

8.0 oz (227 g)

MODELS & ACCESSORIES

Available Models

DMC-4KZ-HD-DSP: HDMI® 4K60 4:4:4 HDR Input Card w/Downmixing for DM® Switchers

Available Accessories

CBL Series: Crestron® Certified Interface Cables
USB-EXT-DM-LOCAL: USB over Ethernet Extender with Routing, Host Module
USB-EXT-DM-REMOTE: USB over Ethernet Extender with Routing, 4-Port Device Module
DMCI: DigitalMedia™ Card Interface

Notes:

1. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. 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 may be used. Please be aware that bandwidth loss is cumulative, so performance may be reduced when inserting multiple cables and couplers inline.
3. USB over Ethernet Extender Modules are sold separately. Refer to the USB-EXT-DM-LOCAL and USB-EXT-DM-REMOTE spec sheets for more information.
4. Item(s) sold separately.