DMC-4KZ-C

DigitalMedia™

DigitalMedia 8G+® 4K60 4:4:4 HDR Input Card for DM® Switchers, HDBaseT® Compatible

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

> Provides a single 4K DM 8G+® input

> HDBaseT® compatible — Enables direct connection to other HDBaseT certified equipment

> 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

> Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM® Ultra cable [1]

> Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e [1]

> Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e [1]

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

> Includes a stereo analog line-level audio output with volume control [3]

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

> Enables device control via CEC

> Supports PoDM and HDBaseT PoE power sourcing [4]

> Occupies a single DM switcher input card slot

> Provides a rack-mountable DM 8G+ receiver solution using the optional DMCI card interface [5]

The DMC-4KZ-C is an input card designed for use with any card-based Crestron® DigitalMedia™ Switcher. It provides one DM 8G+® input, with complementary HDMI® pass-through and analog audio outputs. Using a single CAT type twisted pair cable, the DM 8G+ input enables the connection of a DM 8G+ transmitter, the output of another DM® switcher, or an HDBaseT® certified source.[1]

NOTE: Refer to model DMC-4KZ-C-DSP for use with surround sound sources.

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-C is designed to replace an existing DMC-4K-C or DMC-4K-C-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.

DigitalMedia 8G+®

Engineered for ultra high-bandwidth and ultimate scalability, DigitalMedia 8G+ (DM 8G+) provides a true one-wire lossless transport for moving high-definition video, audio, power, Ethernet, and control signals over twisted pair copper wire. DM 8G+ transports uncompressed Full HD 1080p, WUXGA, and 2K signals over distances up to 330 feet (100 m) using Crestron DM Ultra Cable, Crestron DM 8G® Cable, or third-party CAT5e. Higher resolutions up to UHD and 4K are supported at distances up to 330 feet (100 m) using DM Ultra Cable, 230 feet (70 m) using DM 8G Cable, or 165 feet (50 m) using CAT5e.[1]

HDBaseT® Compatible

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. An HDBaseT compliant device can be connected directly to the DM 8G+ input on the DMC-4KZ-C without requiring a DM transmitter.

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

The DMC-4KZ-C includes an unbalanced analog audio output, which allows stereo audio signals to be extracted from the digital input and fed to a multiroom audio distribution system. The output volume is adjustable via a control system using a keypad, touch screen, handheld remote, or mobile device.[3]

NOTE: For applications requiring the simultaneous distribution of multichannel surround sound and 2-channel stereo audio signals, use model DMC-4KZ-C-DSP.

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-C provides a gateway for controlling devices right through their HDMI or HDBaseT connections, potentially eliminating the need for any dedicated control wires or IR emitters.

Power over DM®

Power over DM (PoDM) technology affords a true one-wire solution by supplying power to the connected device over the same wire that carries video, audio, and data signals. To enable PoDM power sourcing through the DM 8G+ input port (DM IN), simply connect a compatible PoDM or PoE power source to the PoE/PoDM input port (POE IN). Compatible power sources include Crestron models DM-PSU-8-PLUS, DM-PSU-16-PLUS, DM-PSU-ULTRA-MIDSPAN, and CEN-SWPOE-16, or any IEEE 802.3af or 802.3at compliant PoE PSE (Power Sourcing Equipment).

Support for PoDM+ is enabled using any of the Crestron models listed above, or a third-party 802.3at Type 2 PSE. PoDM++ power sourcing is enabled using the DM-PSU-ULTRA-MIDSPAN only. PoDM may also be used to power HDBaseT PoE powered devices.[4]

Standalone DM 8G+ Receiver

In addition to its use as an input card for DM switchers, the DMC-4KZ-C may also be used with the DMCI DigitalMedia Card Interface [5] to provide a DM 8G+ receiver solution that's perfect for installation in an equipment rack or AV cart, or as a portable display interface.

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

Please refer to the DigitalMedia webpage at https://www.crestron.com/digitalmedia for additional design tools and reference documents.

SPECIFICATIONS

Video

Input Signal Types: DM 8G+ & HDBaseT w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support
Output Signal Types: HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support [2] (DVI compatible [6])
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: DM 8G+, HDBaseT
Output Signal Types: HDMI (multichannel pass-through from input), analog stereo (2-channel pass-through from input [3])
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

Communications

DigitalMedia: DM 8G+, HDCP 2.2, EDID, CEC, PoDM, PoDM+, PoDM++, Ethernet
HDBaseT: HDCP 2.2, EDID, CEC, RS-232, PoE, PoE+, Ethernet
HDMI: HDCP 2.2, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDBaseT and HDMI devices and a control system

Connectors

HDMI OUT: (1) HDMI Type A connector, female; HDMI digital video/audio output (DVI compatible [6]) [2]

DM IN: (1) 8-pin RJ45 connector female, shielded; DM 8G+ input, HDBaseT compliant; PoDM PSE port (HDBaseT PoE compatible) [4]; Connects to the DM 8G+ output of a DM transmitter or other DM device, or to an HDBaseT device, via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable [1]

POE IN: (1) 8-pin RJ45 connectors, female; PoE/PoDM input; Connects to an IEEE 802.3af or 802.3at compliant PoDM or PoE PSE (Power Sourcing Equipment) to enable PoDM or HDBaseT PoE power sourcing via the DM IN port. Compatible with PoE+, PoDM+, and PoDM++. Supports Crestron models DM-PSU-8-PLUS, DM-PSU-16-PLUS, DM-PSU-ULTRA-MIDSPAN, and CEN-SWPOE-16 [4]

AUDIO OUT: (2) RCA connectors, female; Unbalanced stereo line-level audio output [3]; Output Impedance: 100 Ohms nominal; Maximum Output Level: 2 Vrms

Indicators

DM IN: (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

Construction

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

Weight

8.0 oz (227 g)

Maximum Cable Lengths

Cable Type: Resolution:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) [1]
1920x1080 FHD 1080p	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K			
2048x1152 QWXGA			
2560x1080 UWFHD		230 ft (70 m)	165 ft (50 m)
2560x1440 WQHD			
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

MODELS & ACCESSORIES

Available Models

DMC-4KZ-C: DigitalMedia 8G+® 4K60 4:4:4 HDR Input Card for DM® Switchers, HDBaseT® Compatible

Available Accessories

DM-PSU-8-PLUS: 8-Port PoDM+ Power Supply for DM® Switchers
DM-PSU-16-PLUS: 16-Port PoDM+ Power Supply for DM® Switchers
DM-PSU-ULTRA-MIDSPAN: DigitalMedia™ Ultra Midspan PoDM++ Injector
DM-RPP-K24: DigitalMedia™ 24-Port Keystone Patch Panel
DM-CONN-ULTRA-RECP Series: DigitalMedia™ Ultra Keystone RJ45 Jacks
DM-CBL-ULTRA-PC Series: DigitalMedia™ Ultra Patch Cables
DM-CBL-ULTRA-NP Series: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR
DM-CBL-ULTRA-P Series: DigitalMedia™ Ultra Cable, Plenum Type CMP
DM-CBL-ULTRA-LSZH Series: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen
DM-CONN-20: Connectors for DM-CBL-ULTRA DigitalMedia Ultra Cable, 20-Pack
DM-CBL-8G-NP Series: DigitalMedia 8G™ Cable, non-plenum
DM-CBL-8G-P Series: DigitalMedia 8G™ Cable, plenum
DM-8G-CONN-WG-100: Connectors with Wire Guide for DM-CBL-8G DigitalMedia 8G™ Cable, 100-Pack
DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG
CBL Series: Crestron® Certified Interface Cables
DMCI: DigitalMedia™ Card Interface

Notes:

1. The maximum cable length for DigitalMedia 8G+ (DM 8G+) or HDBaseT is dependent upon the type of cable and resolution of the video signal. Refer to the "Maximum Cable Lengths" table for a detailed overview. Crestron legacy cable models DM-CBL DigitalMedia Cable and DM-CBL-D DigitalMedia D Cable support the same resolutions and cable lengths as CAT5e. Shielded cable and connectors are required when bundling multiple cables in a wire run, and are recommended for all applications to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the Crestron DigitalMedia Design Guide, Doc. #4546 for complete system design guidelines. DM 8G+ is compatible with HDBaseT Alliance specifications for connecting to HDBaseT compliant equipment. All wire and cables are sold 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. The analog stereo audio output is only active when the input source is outputting a 2-channel stereo signal. For applications using a multichannel surround sound source, use model DMC-4KZ-C-DSP which provides simultaneous surround sound and stereo downmix output signals.
4. To enable PoDM or HDBaseT PoE power sourcing via the DM IN port, the POE IN port must be connected to a PoDM power supply (DM-PSU-8-PLUS, DM-PSU-16-PLUS, or DM-PSU-ULTRA-MIDSPAN) or an 802.3af or 802.3at compliant PoE PSE (CEN-SWPOE-16 or third-party). PoDM+ and HDBaseT PoE+ are supported using any of the listed Crestron models, or other 802.3at Type 2 Class 4 compliant PoE+ PSE. PoDM++ power sourcing is supported using the DM-PSU-ULTRA-MIDSPAN only. Refer to the connected DM 8G+ or HDBaseT device for its PoDM or HDBaseT PoE capabilities and requirements. Any wiring that is connected to a PoDM, PoE, or HDBaseT PoE PSE port is for intra-building use only and should not be connected to a line that runs outside of the building in which the PSE is located.
5. Item(s) sold separately.
6. DVI is supported via the HDMI output using a suitable adapter or interface cable. CBL-HD-DVI interface cables are available separately.

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 https://www.crestron.com/How-To-Buy/Find-a-Representative or by calling 855-263-8754.

The specific patents that cover this and other Crestron products are listed online at https://www.crestron.com/legal/patents.

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

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

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