

4K DigitalMedia 8G+[®] Receiver & Room Controller w/Scaler & Downmixing

- > DigitalMedia 8G+[®] receiver, 4K/60 scaler, audio extractor, and display controller
- > Connects to a DM[®] switcher or transmitter over a single CAT type twisted pair cable^[1]
- > HDBaseT[®] Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides one HDMI[®] or DVI display output^[2]
- > Upscales the input signal to match the native resolution of any screen — including 4K and Ultra HD displays!
- > Downscales 4K, UHD, and ultra high-resolution computer signals to enable viewing on 1080p and other 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%
- > Automatically passes 3D video without scaling to 3D capable displays^[6]
- > Supports up to 8x8 video wall processing^[7]
- > Handles Dolby[®] TrueHD, DTS-HD[®], and uncompressed 7.1 linear PCM audio
- > Provides a balanced stereo analog line-level audio output with volume control
- > Allows extraction of stereo 2-channel audio signals
- > Built-in DSP downmixes multichannel surround sound signals to stereo
- > Provides up to 100 ms delay adjustment of the downmix signal
- > 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]
- > Provides a 10/100 Ethernet LAN connection
- > Compatible with Crestron USB over Ethernet Extenders^[5]
- > Enables device control via CEC, IR, RS-232, and Ethernet
- > Provides two low-voltage relay control ports
- > Allows quick, easy setup and diagnostics
- > Powered via the DM connection or local power pack (included)^[3]
- > Low-profile surface mount design
- > Available in white or black finish



The DM-RMC-4K-SCALER-C-DSP provides an advanced one-box interface solution for a single display device as part of a complete Crestron[®] DigitalMedia[™] system. It functions as a DM 8G+[®] receiver, 4K/60 video scaler, and control interface, providing a single HDMI[®] output along with an analog audio output, plus Ethernet, RS-232, IR, and relay control ports. In addition to DM 8G+, it is also compatible with HDBaseT[®], allowing it to be connected directly to an HDBaseT certified source. Built-in scaling enables the connected display to handle virtually any video signal — including 4K and Ultra HD! Its compact, low-profile design allows the DM-RMC-4K-SCALER-C-DSP to be installed discreetly behind a flat panel display or above a ceiling mounted projector. It connects to the head end or source location using a single CAT type twisted pair cable.^[1]

The DM-RMC-4K-SCALER-C-DSP includes all the features of the DM-RMC-4K-SCALER-C with the addition of internal surround sound downmixing. It is recommended for use with systems containing one or more surround sound sources, particularly those that do not include downmixing at the switcher. Downmixing at the receiver enables surround sound signals to be distributed throughout the system unaffected while simultaneously making a stereo signal available at the display location.

4K Ultra HD

Crestron DigitalMedia continues to advance the standard for digital AV signal distribution, delivering the world's first end-to-end 4K system solution. The DM-RMC-4K-SCALER-C-DSP features the latest DM 8G+ technology, providing support for the transport of 4K and Ultra HD video signals. Support for 4K video also ensures support for the latest generation of computers and monitors with native resolutions beyond 1080p and WUXGA.

DM-RMC-4K-SCALER-C-DSP

4K DM 8G+® Receiver w/Scaler & Downmixing

DigitalMedia 8G+®

As the leader in HDMI and control system technologies, Crestron developed DigitalMedia (DM®) to deliver the first complete HD AV distribution system to take HDMI to a higher level. DigitalMedia allows virtually any mix of HDMI and other AV sources to be distributed throughout a home, office, school, or virtually any other facility. The latest generation of DM is called DigitalMedia 8G™ (DM 8G®). Engineered for ultra high-bandwidth and ultimate scalability, DM 8G provides a true one-wire lossless transport for moving high-definition video, audio, Ethernet, and control signals over a choice of twisted pair or fiber optic cable.

DM 8G over twisted pair copper wire is called DigitalMedia 8G+ (DM 8G+). DM 8G+ handles uncompressed Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for 3D, Deep Color, and HDCP 2.2. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD and DTS-HD Master Audio™ as well as uncompressed linear PCM. All signals are transported over a single CAT type cable, supporting 1080p, WUXGA, and 2K signals at distances up to 330 feet (100 m) using Crestron DM Ultra or 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® Certified

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ input, the DM-RMC-4K-SCALER-C-DSP can be connected directly to an HDBaseT compliant source without requiring a DM transmitter.

Multimedia Display Interface

A single HDMI digital AV output port is provided on the DM-RMC-4K-SCALER-C-DSP for connection to a display or other device. The HDMI output can also handle DVI signals using an appropriate adapter or interface cable.^[2]

A single CAT type cable connects the DM-RMC-4K-SCALER-C-DSP to a DM switcher or transmitter, or to an HDBaseT source, transporting video, audio, control, networking, and power signals all through one simple RJ45 connection.^[1,3] Multiple DM-RMC-4K-SCALER-C-DSPs may be installed to handle each display in a multiroom distribution system, all fed from a central DM-MD series switcher. Or, a single DM-RMC-4K-SCALER-C-DSP can be fed straight from a DM 8G+ or HDBaseT transmitter, affording a simple solution for extending a computer or AV signal to a single display.

4K/60 Scaler

Crestron exclusive 4K/60 scaling technology ensures an optimal image on any screen no matter what video or computer source is selected. And, by placing an independent, high-performance 4K scaler at every display, DigitalMedia delivers the most flexible and user-friendly solution for routing multiple disparate sources to many different display devices. This “distributed scaler” approach allows sources of any resolution or frame rate to be routed to any screen in the building and displayed reliably without compromising the original input signal. So, displays with the same native resolution as the source can receive a pure, unprocessed signal

while every other display receives a signal that’s perfectly scaled to look amazing on its particular screen.

With distributed 4K scaling, DM lets you enjoy a full, unadulterated 4K Ultra HD image in your high-end theater while simultaneously distributing the same image to smaller, lesser displays in other rooms. It also enables HD 1080p and lower resolution images from cameras and legacy sources to look their best on every screen in the house.

The DM-RMC-4K-SCALER-C-DSP accepts any input resolution from standard definition NTSC 480i to ultra high-definition 4K DCI, and scales it beautifully to any output resolution up to 4K DCI (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. Fully automatic operation eliminates any complicated setup by utilizing the display’s EDID to configure the scaler.^[4]

Video Wall Processing

The DM-RMC-4K-SCALER-C-DSP has another trick up its sleeve, providing zoom capability and bezel compensation on its output to display just a portion of the source image. Using this feature, multiple units may be



DM-RMC-4K-SCALER-C-DSP – Left, Front, and Right Views

DM-RMC-4K-SCALER-C-DSP

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combined to configure a video wall composed of up to 64 individual displays. Configurations of up to eight wide by up to eight high are supported, and all that is required is a separate DM-RMC-4K-SCALER-C-DSP for each display, and a DM switcher with sufficient DM 8G+ outputs.

Audio Extracting and Downmixing

The DM-RMC-4K-SCALER-C-DSP is equipped with a balanced analog audio output, allowing stereo audio signals to be extracted from the digital stream and fed to a local amplifier, sound bar, or a pair of powered speakers. 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, while the HDMI output can be configured to output either stereo or multichannel. The analog output also includes programmable volume control, allowing volume adjustment via a control system touch screen, keypad, handheld remote, or mobile device.

LAN Connectivity

Along with high-definition AV and control, DigitalMedia also integrates high-speed Ethernet networking for a total signal distribution solution. The DM-RMC-4K-SCALER-C-DSP includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-RMC-4K-SCALER-C-DSP includes built-in RS-232, IR, and Ethernet control ports to allow programmable control of the display device connected to it. But, it can also provide an alternative to such conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-RMC-4K-SCALER-C-DSP provides a gateway for controlling the display device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters. The DM-RMC-4K-SCALER-C-DSP also supports CEC over HDBaseT, enabling control of an HDBaseT source connected to the DM 8G+ input.

Two low-voltage relay ports are also included on the DM-RMC-4K-SCALER-C-DSP for control of a projection screen or lift.

USB Signal Extension (optional)

DigitalMedia allows for the routing of USB signals alongside video and audio. USB signal extension is enabled on the DM-RMC-4K-SCALER-C-DSP by adding a [USB-EXT-DM](#) USB over Ethernet Extender Module^[5].

Low-Profile Installation

The DM-RMC-4K-SCALER-C-DSP mounts conveniently to a wall, ceiling, or other flat surface. At just over an inch deep, it fits easily behind a flat panel display or above a ceiling-mounted projector. The unit can be powered using the wall mount power pack (included), or via PoDM+ (Power over DigitalMedia Plus) for a true one-wire solution^[3]. All connections and LED indicators are positioned on the sides, ensuring optimal access and visibility for a clean, serviceable installation. An array of indicators is provided for easy setup and troubleshooting.

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

SPECIFICATIONS

Maximum Cable Lengths

Cable Type:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) UTP or STP ^[1]
Resolution:			
1080p60 Full HD	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 2K DCI			
2560x1440 WQHD	230 ft (70 m)	165 ft (50 m)	
2560x1600 WQXGA			
3840x2160 Ultra HD			
4096x2160 4K DCI			

Video

Scaler: 4K video scaler, motion-adaptive deinterlacer, intelligent frame rate conversion, Deep Color support, content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x up to 8 high^[7]

Input Signal Types: DM 8G+® & HDBaseT® w/Deep Color, 3D^[6], & 4K
Output Signal Types: HDMI® w/Deep Color, 3D^[6], & 4K (DVI compatible^[2])

Maximum Scaler Input & Pass-Through Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 4K DCI & 3840x2160 Ultra HD	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	1920x1080 HD1080i	30 Hz	4:4:4	36 bit

Maximum Scaler Output Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 4K DCI & 3840x2160 Ultra HD	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

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

Audio

Input Signal Types: DM 8G+, HDBaseT

Output Signal Type: HDMI (multichannel pass-thru or 2-channel downmix), analog stereo (2-channel downmix)

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

Analog Formats: 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 100.0 ms

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking

IR/Serial: 1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud

DigitalMedia: DM 8G+, HDCP 2.2, EDID, CEC, PoDM+, Ethernet

HDBaseT: HDCP 2.2, EDID, CEC, Ethernet

HDMI: HDCP 2.2, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI and/or HDBaseT device(s) and a control system

Connectors

COM: (1) 5-pin 3.5 mm detachable terminal block;

Bidirectional RS-232 port;

Up to 115.2k baud, hardware and software handshaking support

IR 1 – 2: (1) 4-pin 3.5 mm detachable terminal block comprising (2) IR/Serial ports;

IR output up to 1.1 MHz;

1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

AUDIO OUT L, R: (1) 5-pin 3.5 mm detachable terminal block;

Balanced/unbalanced stereo line-level audio output;

Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;

Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

RELAY 1 – 2: (1) 4-pin 3.5 mm detachable terminal block comprising (2) normally open, isolated relays;

Rated 1 Amp, 30 Volts AC/DC;

MOV arc suppression across contacts

Ground: (1) 6-32 screw, chassis ground lug

LAN: (1) 8-pin RJ45 female, shielded;

10Base-T/100Base-TX Ethernet port

HDMI OUT: (1) 19-pin Type A HDMI female;

HDMI digital video/audio output (DVI compatible^[2])

DM IN: (1) 8-pin RJ45 female, shielded;

DM 8G+ input, HDBaseT compliant;

PoDM+ PD (Powered Device) port^[3];

Connects to the DM 8G+ output of a DM switcher, transmitter, or other DM device, or to an HDBaseT device, via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable^[1]

24VDC 1.25A MAX: (1) 2.1 x 5.5 mm DC power connector;

24 Volt DC power input;

PW-2412WU power pack included

Controls & Indicators

ACT: (1) Green LED, indicates activity

SETUP: (1) Red LED and (1) recessed pushbutton, for Ethernet setup

RESET: (1) Recessed pushbutton, for hardware reset

LAN: (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

HDMI: (1) Green LED, indicates video signal presence at the HDMI output

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

24VDC: (1) Green LED, indicates operating power supplied via PoDM+ or local power pack

Power Requirements

Power Pack: 1.25 Amps @ 24 Volts DC;

100-240 Volts AC, 50/60 Hz power pack, model PW-2412WU included

Power over DM (PoDM): PoDM+ PD (Powered Device), capable of being powered by a PoDM+ PSE (Power Sourcing Equipment), conforms to IEEE 802.3at Type 2 Class 4 (25.5W)^[8]

Power Consumption: 18 Watts

Environmental

Temperature: 32° to 104° F (0° to 40° C)

Humidity: 10% to 90% RH (non-condensing)

Heat Dissipation: 63 BTU/hr

Enclosure

Chassis: Metal, black finish, with (2) integral mounting flanges, vented top, front, and bottom

Mounting: Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height: 12.51 in (318 mm)

Width: 5.37 in (137 mm)

Depth: 1.08 in (28 mm)

Weight

1.50 lb (680 g)

MODELS & ACCESSORIES

Available Models

DM-RMC-4K-SCALER-C-DSP: 4K DigitalMedia 8G+® Receiver & Room Controller w/Scaler & Downmixing

Included Accessories

PW-2412WU: Wall Mount Power Pack, 24VDC, 1.25A, 2.1mm, Universal (Qty. 1 included)

Available Accessories

DM-CBL-ULTRA-NP: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR

DM-CBL-ULTRA-P: DigitalMedia™ Ultra Cable, Plenum Type CMP

DM-CBL-ULTRA-LSZH: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen

DM-CONN: Connector for DM-CBL-ULTRA

DM-CBL-8G-NP: DigitalMedia 8G™ Cable, non-plenum

DM-CBL-8G-P: DigitalMedia 8G™ Cable, plenum

DM-8G-CONN: Connector for DM-CBL-8G

DM-8G-CRIMP: Crimping Tool for DM-8G-CONN

DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G

DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG

CBL Series: Crestron® Certified Interface Cables

MP-WP Series: Media Presentation Wall Plates

MPI-WP Series: Media Presentation Wall Plates - International Version

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe w/Terminal Block Connector

USB-EXT-DM: USB over Ethernet Extender with Routing

MP-AMP30: Media Presentation Audio Amplifier

MP-AMP40-70V: Media Presentation Audio Amplifier, 70 Volt

MP-AMP40-100V: Media Presentation Audio Amplifier, 100 Volt

CCS-SPK-SB-100: Sound Bar

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 recommended 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. The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. [CBL-HD-DVI](#) interface cables are available separately.
3. Receiving Power over DM (PoDM) requires connection to a switcher or other equipment that has a PoDM+ PSE (Power Sourcing Equipment) port. Any wiring that is connected to a PoDM+ 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.
4. EDID (Extended Display Identification Data) is data embedded in an HDMI, DVI, or VGA signal that enables a display device to tell the source device what resolutions and formats it can support, allowing the source to configure itself automatically to feed the best signal that both devices can support.
5. USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM](#) spec sheet for more information.
6. Does not support scaling of 3D signals. Reverts to pass-through mode if a 3D signal and 3D-capable display are detected.
7. Video wall processing requires a separate DM-RMC-4K-SCALER-C-DSP for each individual display.
8. References to the IEEE 802.3at standard are used to demonstrate that PoDM technology is similar in function to PoE and follows the same essential specifications. The DM-RMC-4K-SCALER-C-DSP cannot be powered over Ethernet, and its DM IN port should not be connected directly to an Ethernet network or device.

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.

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