DM-NVX-D30C

DigitalMedia™

DM NVX® 4K60 4:4:4 HDR Network AV Decoder Card

- *4K60 4:4:4 video over standard Gigabit Ethernet*
- *HDR10 video support*
- *Real-time video performance over the network*
- *Pixel Perfect Processing technology*
- *Enterprise-grade security including 802.1X, Active Directory® credential management, TLS, and AES-128*
- *HDCP 2.2 compliant*
- *Decoder functionality for use with DM NVX® products that can function as encoders*
- *One HDMI® output*
- *Analog audio de-embedding*
- *7.1 surround sound audio*
- *AES67 audio embedding or de-embedding*
- *Copper Ethernet connectivity*
- *CEC device control*
- *Easy setup via built-in web pages*
- *Compatibility with Crestron® 3-Series® or later control systems*
- *Streamlined management using DM NVX Director™ virtual switching appliances*
- *Crestron XiO Cloud® service support*
- *Designed for installation into a DMF-CI-8 chassis*

Crestron® DM NVX® technology transports ultra high-definition 4K60 4:4:4 video over standard Gigabit Ethernet with no perceptible latency or loss of quality. Using standard network switches and CAT5e UTP wiring, a DM NVX system delivers a high-performance virtual matrix routing solution for any enterprise or campus-wide 4K content distribution application. Support for High Dynamic Range (HDR10) and HDCP 2.2 compliance ensures the ultimate in picture quality and compatibility for all of today's varied media sources.[1, 2]

The Crestron® DM-NVX-D30C is an AV over IP decoder that occupies one slot of a DMF-CI-8 card chassis. The card is designed to function as a receiver in a high-density rack-mount installation. Featuring secure web-based control and management, an HDMI® output, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity, the DM-NVX-D30C offers a low-cost decoder solution for a DM NVX network AV installation of any size.[2]

Real-Time 4K60 Video Distribution

Engineered for demanding conference room and classroom applications, DM NVX technology ensures real-time, full-motion 4K60 video performance for the presentation of multimedia, videoconferencing, and live camera images. Interactive functions such as gameplay and the use of a mouse are fluid and natural.

A DM NVX system is engineered for stability and ultimate reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage. Variable Multicast TTL (Time To Live) enables traversing multiple network routers for optimal flexibility.

Pixel Perfect Processing Technology

A DM NVX system incorporates Pixel Perfect Processing technology, which provides flawless video transport in all applications. The DM-NVX-D30C can decode a video signal to achieve imperceptible end-to-end latency of less than 1 frame. The image quality of the source is maintained across a 1-Gigabit network at any resolution up to 4K60 4:4:4.

Enterprise-Grade Security

Using advanced security features and protocols such as 802.1X authentication, Active Directory® credential management, AES-128 content encryption, PKI authentication, TLS, SSH, and HTTPS, a DM NVX system delivers a true enterprise-grade network AV solution engineered to fulfill demanding IT policies.

Decoder Functionality

The DM-NVX-D30C is a basic decoder card that receives a signal from a DM NVX encoder and feeds it to a local display device via the HDMI output. The DM-NVX-D30C can quickly and easily switch among multiple encoders on the network. Compatible with DM NVX products that can function as encoders, the DM-NVX-D30C can be used in any DM NVX network AV design.

NOTE: The HDMI output does not support video scaling.

Analog Audio De-embedding

The analog audio output provides a stereo line-level signal to feed a local sound system or sound bar. The output volume is adjustable via a control system or web browser.[3]

7.1 Surround Sound Audio

DM NVX technology supports the lossless transport of 7.1 surround sound audio signals, including Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed linear PCM.

NOTE: The DM-NVX-D30C cannot receive downmix signals from a DM-NVX-351 or DM-NVX-351C encoder.

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AES67 Audio Embedding or De-embedding

AES67 support allows the selected audio source to be transmitted as a 2-channel AES67 source while another 2-channel AES67 audio stream is received from a Crestron DSP or other third-party device and combined with the video signal. The received AES67 audio stream can be combined with the video and then output via the HDMI output and analog audio output.

NOTE: An AES67 stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

Copper Ethernet Connectivity

The DM-NVX-D30C includes one RJ-45 1000BASE-T Ethernet port.[2] For information about network requirements and guidelines, refer to the DM NVX AV-over-IP System Design Guide, Doc. 7977.

CEC Device Control

Under the management of a control system, the DM-NVX-D30C can control the display device via CEC (Consumer Electronics Control) over the HDMI connection, potentially eliminating the need for dedicated serial cables or IR emitters.

CEC over the HDMI output can also enable the display device to be turned on or off automatically without the use of a control system.

Web-Based Setup

Setup of the DM-NVX-D30C is accomplished by using a web browser. Full control and monitoring of the card is enabled through integration with a control system or with a DM NVX Director™ virtual switching appliance.

Streamlined Management Using DM NVX Director Virtual Switching Appliances

For applications that are small to moderate in size, a network of DM NVX endpoints can be configured and controlled with the use of a control system. For larger enterprise and campus-wide signal routing applications, adding a DM NVX Director virtual switching appliance (DM-NVX-DIR-80, DM-NVX-DIR-160, or DM-NVX-DIR-ENT) enhances and streamlines the entire configuration and control process. A DM NVX Director appliance provides a central point of management and enables the creation of multiple virtual matrix switchers through one easy-to-use web-based portal.

Crestron XiO Cloud® Service Support

The DM-NVX-D30C is compatible with the Crestron XiO Cloud service, which is a platform for remotely provisioning, monitoring, and managing Crestron devices across an enterprise or an entire client base. The service enables installers and IT managers to deploy and manage thousands of devices in the amount of time it previously took to manage a single device. For more information, visit www.crestron.com/xiocloud.

High-Density Card-Based Solution

The DM-NVX-D30C is designed for installation into a DMF-CI-8 card chassis, which provides a high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

For additional design tools and reference documents, refer to the DM NVX web page at www.crestron.com/nvx.

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Specifications

Decoding

Video Codec: Pixel Perfect Processing

Video Resolutions: Up to 4096x2160@60Hz (DCI 4K60), 4:4:4 color sampling, HDR10, and Deep Color support

Audio Formats: Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)

Bit Rates: 200 to 950 Mbps[4]

Streaming Protocols: RTP, SDP

Container: MPEG-2 transport stream (.ts)

Session Initiation: Multicast via secure RTSP

Copy Protection: HDCP 2.2, AES-128, PKI

Video

Output Signal Types: HDMI with HDR10, Deep Color, and 4K60 4:4:4 support[1] (DVI compatible[5])

Copy Protection: HDCP 2.2

Maximum Resolutions: Common resolutions are shown in the following table. 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[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 Formats: Stereo 2-channel

Digital-To-Analog Conversion: 24-bit 48 kHz

AES67: 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 Output Volume Adjustment: -80 to +20 dB

Communications

Ethernet: 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, IPv4, Active Directory authentication, variable Multicast TTL, HTTPS web browser setup and control, Crestron 3-Series or later control system integration

USB: USB 2.0 computer console (for setup)

HDMI: HDCP 2.2, EDID, CEC

DM NVX (via Ethernet): HDCP 2.2, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

Connectors

Ethernet: (1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port[2]

HDMI OUTPUT: (1) HDMI Type A connector, female; HDMI digital video/audio output[1] (DVI compatible[5])

AUDIO: (1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output;[3] Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;
Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

CONSOLE, USB: (1) Micro USB connector, female; USB 2.0 computer console port (for setup)

Controls and Indicators

NV: (1) Green LED, indicates unit is decoding (receiving) network video

OL: (1) Green LED, indicates an online connection to a control system via Ethernet

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

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

Construction

Plug-in card, occupies (1) card slot in a DMF-CI-8 card chassis, includes metal faceplate

Weight

14.4 oz (409 g)

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Compliance

UL® Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

Model and Accessories

Model

DM-NVX-D30C: DM NVX 4K60 4:4:4 HDR Network AV Decoder Card

Available Accessories

DMF-CI-8: DigitalMedia™ Card Chassis for DM NVX Cards

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

DM-CBL-ULTRA-PC-10: DigitalMedia Ultra Patch Cable, 10 ft (3 m)

DM-CONN-ULTRA-RECP-20: DigitalMedia Ultra Keystone RJ-45 Jack, 20-Pack with Termination Tool

DM-RPP-K24: DigitalMedia™ Ultra Keystone RJ-45 Jack, 20-Pack with Termination Tool

Management Tools

DM-NVX-DIR-80: DM NVX Director Virtual Switching Appliance for 80 Endpoints

DM-NVX-DIR-160: DM NVX Director Virtual Switching Appliance for 160 Endpoints

DM-NVX-DIR-ENT: DM NVX Director Virtual Switching Appliance for 1000 Endpoints

Notes:

1. 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. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
2. The minimum cable required for DM NVX AV over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-D30C is for connection to an Ethernet network or device—the port cannot be connected to the DM® port of other Crestron devices.
3. The analog audio output is functional only when the DM-NVX-D30C is receiving a 2-channel stereo input signal.
4. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
5. HDMI connections require an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables are available separately.

This product may be purchased from select authorized Crestron dealers and distributors. To find a dealer or distributor, please 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 or by calling 855-263-8754.

This product is covered under the Crestron standard limited warranty. Refer to www.crestron.com/warranty for full details.

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.

Specifications are subject to change without notice.

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