

DigitalMedia™ 4K60 4:4:4 HDR Network AV Encoder Card

- > 4K60 4:4:4 video over standard Gigabit Ethernet
- > Real-time video performance over the network with no perceptible latency or loss of quality
- > Stable, reliable, economical, and configurable to scale for any enterprise signal routing application
- > Enterprise-grade security including 802.1X, Active Directory® credential management, TLS, and AES-128
- > HDR (High Dynamic Range) video support (HDR10)
- > Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed 7.1 linear PCM audio support
- > HDCP 2.2 compliant
- > Basic encoder for use with all DM NVX™ products
- > One RJ45 LAN port^[2]
- > One HDMI® input^[1]
- > Analog audio stereo output^[3]
- > CEC device control gateway^[4]
- > Easy setup via built-in webpages
- > Fully-controllable via a Crestron® 3-Series® (or later) control system
- > Enhanced centralized management using the optional DM NVX Director™ virtual switching appliance
- > XiO Cloud™ remote provisioning and management
- > Occupies a DMF-CI-8 chassis

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, DM NVX technology delivers a rock-solid, high-performance virtual matrix routing solution that is both economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Support for HDR10 and HDCP 2.2 ensures the ultimate in picture quality and compatibility for all of today's varied media sources.^[1,2]

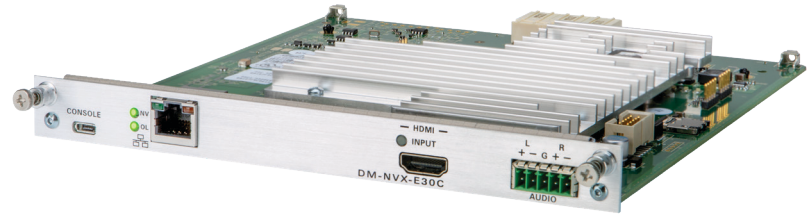
The Crestron® DM-NVX-E30C is an AV over IP encoder that occupies one slot of a DMF-CI-8 card chassis. The card is designed to function as a transmitter in a high-density rack-mount installation. Featuring simple, secure web-based control and management, an HDMI® input, an analog audio output, and copper LAN connectivity, the DM-NVX-E30C offers a low-cost encoder solution for any DigitalMedia™ network AV installation.^[2]

NOTE: DM NVX products are compatible with Crestron 3-Series (or later) control systems only.

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. Using DM NVX technology, interactive functions such as mousing and game play are fluid and natural.

A DM NVX system is engineered for rock-solid stability and ultimate reliability. Forward Error Correction ensures that AV data is delivered



without interruption regardless of interference around the network cable. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for one-to-many applications such as digital signage or video walls. Variable Multicast TTL (Time To Live) enables traversing multiple network routers for optimal flexibility.

Pixel Perfect Processing

A DM NVX system uses Crestron patented pixel perfect processing technology, which enhances natural and computer screen content such as still images and Excel spreadsheets containing fine details. Pixel perfect processing, which replaces the JPEG 2000 encoding and decoding technology previously used in DM NVX devices, decodes and scales simultaneously to achieve imperceptible end-to-end latency of less than 1 frame. The quality and latency of the source is maintained across a standard Gigabit network at any resolution up to 4K60 4:4:4.

Encoder Functionality

The DM-NVX-E30C is a basic encoder that allows a laptop computer, camera, or other media source to be connected via an HDMI cable and then transmitted over the network to one or many decoders.^[1] The DM-NVX-E30C is compatible with all DM NVX products and can be used in any network AV design.

HDMI Input

The DM-NVX-E30C includes one HDMI input, which provides a convenient way to connect a source to a DM NVX integrated system.^[1]

7.1 Surround Sound Audio

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

Analog Audio Output

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]

Copper LAN Connectivity

The DM-NVX-E30C includes one RJ45 1000Base-T LAN port. For complete network requirements and guidelines, refer to the DM NVX Application Design Guide and DM NVX System Design Guide, Doc. 7977, both available at <https://www.crestron.com/nvx>.

DM-NVX-E30C DM[®] 4K60 4:4:4 HDR Network AV Encoder Card

Enterprise-Grade Security

A secure AV network ensures its own reliability by protecting the integrity of the content being delivered and the privacy of the personnel accessing it. Every device on the network must be secure to protect against malicious intrusions from both inside and outside of the LAN. Employing 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 the demanding IT policies of corporate, university, medical, military, and governmental clients.

CEC Device Control

The DM-NVX-E30C provides a gateway for controlling devices through the HDMI connections by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Under the management of a control system, the DM-NVX-E30C enables control of display devices and other equipment via CEC, potentially eliminating the need for any dedicated serial cables or IR emitters.^[4]

Web-Based Setup

Setup of the DM-NVX-E30C is accomplished using a computer web browser. Full control and monitoring of the device is enabled through integration with a Crestron control system (3-Series or later) or the DM NVX Director[™] virtual switching appliance.

DM NVX Director Option

For small to moderate sized applications, a network of DM NVX endpoints can be configured and controlled using a Crestron control system. For larger enterprise and campus-wide signal routing applications, adding the 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 by providing a central point of management, and by enabling the creation of multiple virtual matrix switchers, all through one easy-to-use web-based portal.

XiO Cloud[™] Provisioning and Management

The Crestron XiO Cloud[™] service is the unifying cloud-based platform for remote provisioning, monitoring, and management of Crestron devices across an enterprise or an entire client base. The XiO Cloud service enables installers and IT managers to deploy and manage thousands of devices in the amount of time it would ordinarily take to manage just one. It provides a zero-touch solution that allows complete configuration of device settings without any hardware in hand. Simply connect each device on site and let the XiO Cloud service push out the settings, licenses, drivers, and firmware updates automatically and securely for a quick and painless, ready-to-use deployment.

Ongoing XiO Cloud service facilitates daily management and monitoring of every device through a single dashboard with comprehensive reporting and logging, live status viewing and alerts, performance metrics and analytics, scheduled actions and updates, and more. As requirements grow and evolve, new features and functionality can be added easily to one or many devices at any time without ever going on site. The XiO Cloud service is a subscription-based service offering an adaptable SaaS (Software as a Service) solution with graduated levels of functionality and unlimited

scalability. For more information about the XiO Cloud service, visit <https://www.crestron.com/xiocloud>.

High-Density Card-Based Solution

The DM-NVX-E30C occupies a [DMF-CI-8](#) card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

Refer to the DM NVX webpage at <https://www.crestron.com/nvx> for additional design tools and reference documents.

SPECIFICATIONS

Encoding

Video Processing: Pixel perfect processing

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

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

Bitrates: 200 to 950 Mbps^[5]

Streaming Protocols: RTP, SRTSP, SDP

Container: MPEG-2 transport stream (.ts)

Session Initiation: Multicast via SRTSP

Copy Protection: HDCP 2.2, AES-128, PKI

Video

Input Signal Types: HDMI w/HDR10, Deep Color, & 4K60 4:4:4 support^[1,6] (Dual-Mode DisplayPort[™] & DVI compatible^[7])

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 (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 600 MHz.

Audio

Input Signal Types: HDMI (Dual-Mode DisplayPort compatible^[7])

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

DM-NVX-E30C DM[®] 4K60 4:4:4 HDR Network AV Encoder Card

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 control system integration (3-Series or later)

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, SRTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

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

Connectors

LAN: (1) 8-pin RJ45 connector, female;
100Base-TX/1000Base-T Ethernet port^[2];

HDMI INPUT: (1) HDMI Type A connector, female;
HDMI digital video/audio input^[1];
(DVI & Dual-Mode DisplayPort compatible^[7])

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 & Indicators

NV: (1) Green LED, indicates unit is encoding (transmitting) network video

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

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

HDMI INPUT: (1) Green LED, indicates sync detection at the HDMI input

Construction

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

Weight

14.4 oz (409 g)

Compliance

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

MODELS & ACCESSORIES

Available Models

DM-NVX-E30C: DigitalMedia™ 4K60 4:4:4 HDR Network AV Encoder Card

Available Accessories

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

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, Enterprise Version

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 RJ45 Jack, 20-Pack with Termination Tool

DM-RPP-K24: DigitalMedia Ultra Keystone RJ45 Jack, 20-Pack with Termination Tool

Notes:

- 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. Be aware that bandwidth loss is cumulative, so performance may be reduced when inserting multiple cables and couplers inline.
- The minimum cable required for DM NVX over 1000Base-T Ethernet (copper) is unshielded CAT5e. The LAN port on the DM-NVX-E30C is for connection to an Ethernet network or device; it cannot be connected to the "DM" ports of other Crestron devices.
- The analog audio output is functional only when the DM-NVX-E30C is receiving a 2-channel stereo input signal.
- Device control via CEC or Ethernet requires integration with a Crestron 3-Series (or later) control system.
- The minimum bitrate for 4K60 video is 350 Mbps. Bitrate below 350 Mbps may display a black screen.
- 3D video input signals are automatically converted to 2D.
- HDMI connections require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. **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 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>.

DM-NVX-E30C DM[®] 4K60 4:4:4 HDR Network AV Encoder Card

Crestron, the Crestron logo, 3-Series, Crestron XiO Cloud, DigitalMedia, DM, DM NVX, DM NVX Director, and XiO Cloud 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:X are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDMI and the HDMI logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Active Directory is either a trademark or registered trademark of Microsoft Corporation in the United States and/or other countries. DisplayPort is either a trademark or registered trademark of Video Electronics Standards Association 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. ©2019 Crestron Electronics, Inc.