

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

- > 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 with PoE+ support^[2]
- > One HDMI® input^[1]
- > Analog audio stereo output^[3]
- > RS-232 and IR control ports^[5]
- > CEC device control gateway^[5]
- > 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
- > Compact, surface-mountable form factor
- > Quiet and cool running operation
- > Powered via local power pack (sold separately), optional power injector, PoE+ compliant Ethernet switch, or approved third-party PSE^[4]



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-E30 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-E30 is compatible with all DM NVX products and can be used in any network AV design.

HDMI Input

The DM-NVX-E30 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.

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]

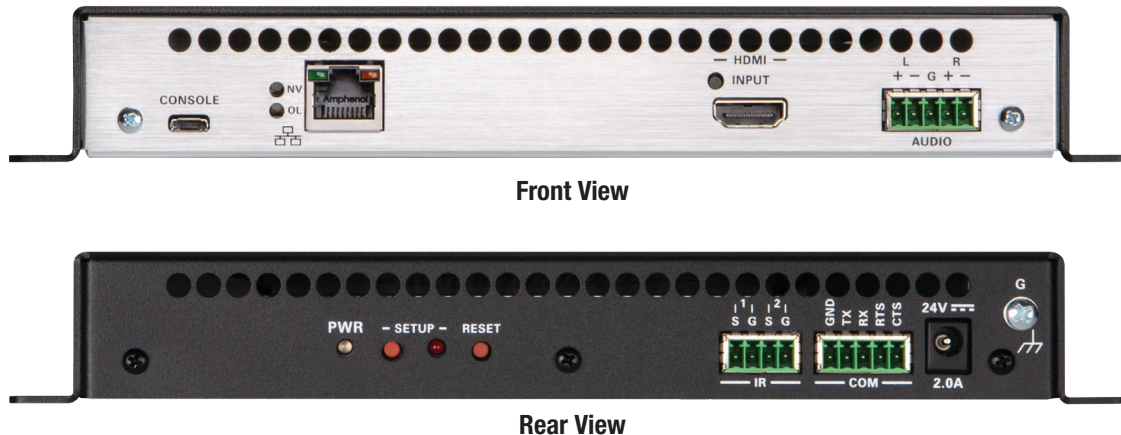
The Crestron® DM-NVX-E30 is a compact AV over IP encoder designed to function as a transmitter. Featuring simple, secure web-based control and management, an HDMI® input, an analog audio output, and copper LAN connectivity with PoE+ support, the DM-NVX-E30 offers a low-cost encoder solution for any DigitalMedia™ 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

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Front View

Rear View

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-E30 includes one RJ45 1000Base-T LAN port. The port is PoE+ compliant, allowing the device to be powered via a PoE+ Ethernet switch.^[2,4] For complete network requirements and guidelines, refer to the DM NVX Application Design Guide and DM NVX System Design Guide, Doc. 7977

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.

Device Controller

The DM-NVX-E30 includes built-in RS-232 and IR control ports for control of the connected display, camera, and other devices under the management of a control system. Additional control capability is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI technology. Through its Ethernet connection to the control system, the DM-NVX-E30 provides a gateway for controlling the display and source devices through the HDMI connections, potentially eliminating the need for any dedicated serial cables or IR emitters.^[5]

Web-Based Setup

Setup of the DM-NVX-E30 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.

Low-Profile Installation

The DM-NVX-E30 mounts conveniently to a flat surface or rack rail, and fits easily behind a flat panel display, above a ceiling-mounted projector, beneath a tabletop, or inside a lectern, AV cart, or equipment cabinet. All connections and LED indicators are positioned on the front and rear of the device, offering optimal access and visibility for a clean, serviceable installation. Power is provided by connecting to a PoE+ compliant Ethernet switch.^[4]

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^[6]
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^[1,7] (Dual-Mode DisplayPort™ & DVI compatible^[8])
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)^[8]
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
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: 10/100/1000 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)
RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console (for setup)
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 (via control system)
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];
 PoE+ PD (powered device) port compatible with Crestron **DM-PSU-ULTRA-MIDSPAN**, PoE+ compliant Ethernet switch, or approved third-party PSE
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)
IR 1 – 2: (1) 4-pin 3.5 mm detachable terminal block;
 Comprises (2) IR/Serial ports^[5];
 IR output up to 1.1 MHz;
 1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud;
IRP2 emitter sold separately
COM: (1) 5-pin 3.5 mm detachable terminal block;
 Bidirectional RS-232 port^[5];
 Up to 115.2k baud, hardware and software handshaking support
24VDC 2.0A: (1) 2.1 x 5.5 mm DC power connector;
 24 Volt DC power input;
PW-2420RU power pack (sold separately)
G: (1) 6-32 screw;
 Chassis ground lug

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
- PWR:** (1) Bi-color green/amber LED, indicates operating power supplied via the power pack (sold separately), PoE+ compliant Ethernet switch, or injector/PSE, illuminates amber while booting and green when operating
- SETUP:** (1) Red LED and (1) recessed pushbutton for onscreen IP address display
- RESET:** (1) Recessed pushbutton for hardware reset

Power

Power Pack (sold separately):

- Input: 1.5 Amps maximum @ 100-240 Volts AC, 50/60 Hz
- Output: 2.5 Amps @ 24 Volts DC
- Model: [PW-2420RU](#)

PoE+: Compatible with Crestron [DM-PSU-ULTRA-MIDSPAN](#), PoE+ compliant Ethernet switch, or approved third-party PSE

Power Consumption: 15 Watts typical

Environmental

- Temperature:** 32° to 104° F (0° to 40° C)
- Humidity:** 10% to 90% RH (non-condensing)
- Heat Dissipation:** 48 BTU/hr
- Acoustic Noise:** 33 dBA maximum

Enclosure

- Chassis:** Metal, black finish, integral mounting flanges, fan cooled; vented top, front, rear, and sides
- Mounting:** Freestanding, surface mount, or attach to a single rack rail

Dimensions

- Height:** 8.41 in (214 mm)
- Width:** 9.27 in (236 mm)
- Depth:** 1.25 in (32 mm)

Weight

1.9 lb (0.87 kg)

Compliance

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

MODELS & ACCESSORIES

Available Models

DM-NVX-E30: DigitalMedia™ 4K60 4:4:4 HDR Network AV Encoder

Available Accessories

- PW-2420RU:** Desktop Power Pack, 24VDC, 2.5A, 2.1mm, Universal
- 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)
- CNSP-XX:** Custom Serial Interface Cable
- 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-PSU-ULTRA-MIDSPAN:** DigitalMedia Ultra Midspan PoDM++ Injector
- DM-RPP-K24:** DigitalMedia Ultra Keystone RJ45 Jack, 20-Pack with Termination Tool
- IRP2:** IR Emitter Probe with Terminal Block Connector

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-E30 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-E30 is receiving a 2-channel stereo input signal.
- Refer to the "Power" specifications for all approved powering options.
- Device control via RS-232, IR, 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 formats are not supported.
- 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.

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