

## DM NVX® 4K60 4:2:0 Network AV Decoder with Scaler



- Support of video resolutions up to 4K60 4:2:0 over standard Gigabit Ethernet, 4K30 4:4:4 included
- Real-time video performance over the network
- Enterprise-grade security including 802.1X, Active Directory® credential management, TLS, and AES-128
- HDCP 2.3 compliance
- Decoder functionality designed for use with the DM-NVX-E20 or DM-NVX-E10 and support for other DM NVX® products that can function as encoders
- One HDMI® output with 4K60 4:2:0 video scaler
- Video wall processing
- Analog audio de-embedding
- 7.1 surround sound audio
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity with PoE+ support
- Automatic point-to-point connectivity with the DM-NVX-E20 or DM-NVX-E10
- Device control via RS-232, IR, and CEC
- Easy setup using built-in web pages
- Compatibility with Crestron® 3-Series® or later control systems
- Streamlined management using DM NVX Director® virtual switching appliances
- .AV Framework™ technology support
- XiO Cloud® service support
- Crestron Home® OS support
- API for full control of the DM-NVX-D200
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

The DM-NVX-D200 is a compact AV-over-IP decoder designed to receive video with resolutions up to 4K60 4:2:0 over standard Gigabit Ethernet. Featuring secure web-based control and management, an HDMI® output with 4K60 video scaler, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE+ support, the DM-NVX-D200 provides a decoder solution that offers price and performance optimization in a DM NVX® network AV installation of any size.<sup>1, 2</sup>

### Real-Time 4K60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-D200 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.

### 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 with 4K60 4:2:0 Scaler

The DM-NVX-D200 provides decoder functionality designed for use with the DM-NVX-E20 or DM-NVX-E10 encoder. The DM-NVX-D200 supports resolutions up to 4K60 4:2:0 including 4K30 4:4:4. The DM-NVX-D200 receives a signal from the DM-NVX-E20 or DM-NVX-E10 and feeds it to a local display device via the HDMI output. The built-in scaler ensures an optimal image, scaling the encoded source resolution up or down to match the native resolution of the display device.

In addition to the DM-NVX-E20 or DM-NVX-E10, the DM-NVX-D200 is also interoperable with other DM NVX products that can function as encoders. If the DM-NVX-D200 is used with a DM NVX encoder other than the DM-NVX-E20 or DM-NVX-E10, the stream type of the encoder must be configured to interoperate with the DM-NVX-D200. The resolution of the encoder must also be configured so that it does not exceed the maximum resolution of the DM-NVX-D200. Configuration of the encoder is accomplished by using the web interface or a control system.

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**NOTE:** It is recommended that the DM-NVX-D200 not be used with 4K60 4:4:4 encoders (for example, the DM-NVX-36x [C] Series) in order to maintain the higher resolutions supported by the 4K60 4:4:4 encoders.

## Video Wall Processing

A video wall composed of up to 64 individual displays can be configured using multiple DM NVX endpoints. Each endpoint provides fully adjustable zoom capability and bezel compensation to accommodate a range of video wall configurations and display types. One DM NVX endpoint is required per display, supporting configurations of up to 8 wide by 8 high.

## 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 can be adjusted by using the web interface or a control system.<sup>3</sup>

## 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.

## AES67 Audio Embedding and De-embedding

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

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

## Copper Ethernet Connectivity

The DM-NVX-D200 includes one RJ-45 1000BASE-T Ethernet port.<sup>2</sup> The port is PoE+ compliant, enabling the device to be powered via a PoE+ Ethernet switch.<sup>4</sup> For information about network requirements and guidelines, refer to the [DM NVX AV-over-IP System Design Guide](#).

## Automatic Point-to-Point Connectivity with the DM-NVX-E20 or DM-NVX-E10

Point-to-point connectivity enables the DM-NVX-D200 to be connected directly to a DM-NVX-E20 or DM-NVX-E10 to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the DM-NVX-D200 is connected directly to the 1000BASE-T port of the encoder. By default, point-to-point mode automatically detects whether a DM-NVX-D200 is connected directly to the encoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-D200 and the encoder is detected, the devices operate in point-to-point mode without the need for additional configuration. The web interface or a control system can be used to disable point-to-point mode or to enable automatic detection of point-to-point connectivity.

## Device Control via RS-232, IR, and CEC

The DM-NVX-D200 includes built-in COM (RS-232) and IR ports for control of devices under the management of a control system. Additional control capability is provided by CEC (Consumer Electronics Control) over the HDMI connection. Under the management of a control system, the DM-NVX-D200 can control the display device via CEC, potentially eliminating the need for dedicated serial cables or IR emitters.

The COM port, IR port, and 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-D200 is accomplished by using a web browser. Full control and monitoring of the device 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

Use of a DM NVX Director virtual switching appliance ([DM-NVX-DIR-80](#), [DM-NVX-DIR-160](#), or [DM-NVX-DIR-ENT](#)) 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.

## Compact Surface-Mountable Design

The DM-NVX-D200 mounts conveniently to a flat surface or rack rail and fits easily behind a flat panel display, above a ceiling-mounted projector, or inside an AV cart or equipment cabinet. All connectors 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 via PoE+ or an optional power pack (sold separately).<sup>4</sup>

For additional information about DM NVX technology and the DM NVX product family, refer to the DM NVX web page at [www.crestron.com/nvx](http://www.crestron.com/nvx).

## DM NVX® 4K60 4:2:0 Network AV Decoder with Scaler

## Specifications

## Decoding

<b>Stream Type</b>	Default support for DM-NVX-E20/E10 Series; Support available for 4K60 4:4:4 encoders when using DM-NVX-D200 supported resolutions
<b>Video Resolutions</b>	HDMI with Deep Color and 4K60 4:2:0 support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
<b>Bit Rates</b>	Based on the stream received from the encoder
<b>Streaming Protocols</b>	RTP, SDP
<b>Container</b>	MPEG-2 transport stream (.ts)
<b>Session Initiation</b>	Multicast via secure RTSP
<b>Copy Protection</b>	HDCP 2.3, AES-128, PKI

## Video

<b>Output Signal Types</b>	HDMI with Deep Color and 4K60 4:2:0 support (DVI compatible) <sup>5</sup>
<b>Copy Protection</b>	HDCP 2.3
<b>Input and Scaler Output Resolutions</b>	Common resolutions are listed in the following table.

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K and 3840x2160 4K UHD	30 Hz	4:4:4	8 bit
		30 Hz	4:2:2	12 bit
		60 Hz	4:2:0	8 bit
	2560x1600 WQXGA	60 Hz	4:4:4	8 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:2:0 color sampling. Custom resolutions are supported at pixel clock rates up to 300 MHz.

## Audio

<b>Output Signal Types</b>	HDMI, analog stereo
<b>Digital Formats</b>	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
<b>Analog Formats</b>	Stereo 2-channel
<b>Digital-To-Analog Conversion</b>	24-bit 48 kHz
<b>AES67</b>	24-bit 48 kHz
<b>Analog Performance</b>	Frequency Response: 20 Hz to 20 kHz ±0.5 dB S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted THD+N: <0.0005% @ 1 kHz Stereo Separation: >90 dB
<b>Analog Output Volume Adjustment</b>	-80 to +20 dB

## Communications

<b>Ethernet</b>	100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, secure CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, IPv4 only or both IPv4 and IPv6, Active Directory authentication, variable Multicast TTL, HTTPS web browser setup and control, Crestron 3-Series or later control system integration
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022

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**Connectors**

<b>Ethernet</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>2</sup> PoE+ PD (powered device) port; IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party PoE+ PSE <sup>4</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output (DVI compatible) <sup>5</sup>
<b>AUDIO OUT</b>	(1) 3-pin 3.5 mm detachable terminal block; Unbalanced stereo line level audio output; <sup>3</sup> Output Impedance: 100 Ohms unbalanced; Maximum Output Level: 2 Vrms unbalanced
<b>IR</b>	(1) 2-pin 3.5 mm detachable terminal block; IR/Serial port; IR output up to 60kHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud
<b>24V 1.25A</b>	(1) 2.1 x 5.5 mm DC power connector; 24 VDC power input; <a href="#">PW-2412WU</a> power pack (sold separately)
<b>G</b>	(1) 6-32 screw; Chassis ground lug

**Controls and Indicators**

<b>Ethernet</b>	(2) LEDs, green indicates Ethernet link status, amber indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>PWR</b>	(1) Bi-color green/amber LED, indicates operating power supplied via PoE+ or optional power pack (sold separately), lights amber while the device is booting and green when the device is operational
<b>SETUP</b>	(1) Red LED and (1) push button
<b>RESET</b>	(1) Recessed push button, reboots the device

**Power**

<b>PoE+</b>	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant; Compatible with Crestron DM-PSU-ULTRA-MIDSPAN, PoE+ compliant Ethernet switch, or third-party IEEE 802.3at compliant PSE
<b>Power Pack (Optional)</b>	Input: 1.5 A maximum @ 100-240 VAC, 50/60 Hz Output: 1.25 A @ 24 VDC Model: <a href="#">PW-2412WU</a> (sold separately)
<b>Power Consumption</b>	11.9 W typical

**Environmental**

<b>Temperature</b>	32° to 104° F (0° to 40° C)
<b>Humidity</b>	10% to 95% RH (non-condensing)
<b>Heat Dissipation</b>	40.6 BTU/hr typical
<b>Acoustic Noise</b>	33 dBA typical

**Enclosure**

<b>Chassis</b>	Metal, black finish, vented top, front, rear, and sides
<b>Mounting</b>	Freestanding, surface mountable, or attachment to a single rack rail (mounting flanges included)

**Dimensions**

<b>Height</b>	5.41 in. (138 mm)
<b>Width</b>	8.38 in. (213 mm) without mounting flanges attached
<b>Depth</b>	1.20 in. (31 mm)

**Weight**

1.6 lb (0.73 kg)

**Compliance****Regulatory Model: M202013001**

Bureau Veritas Listed for US and Canada, IC, CE, FCC Part 15 Class B digital device

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## Model

### DM-NVX-D200

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## Management Tools

### DM-NVX-DIR-80

DM NVX Director Virtual Switching Appliance,  
80 Endpoints

### DM-NVX-DIR-160

DM NVX Director Virtual Switching Appliance,  
160 Endpoints

### DM-NVX-DIR-ENT

DM NVX Director Virtual Switching Appliance,  
1000 Endpoints

## Accessories

For a list of accessories, visit the [DM-NVX-D200](#) product page.

### Notes:

1. For 4K60 4:2:0 or 4K30 4:4:4 performance, HDMI cables and couplers with a minimum bandwidth of 10.2 Gbps can 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-D200 is provided for connection to an Ethernet network or device—the port cannot be connected to the DM® port of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
3. The analog audio output is functional only when the DM-NVX-D200 is receiving a 2-channel stereo input signal.
4. In order for the Ethernet port to receive PoE+, the port must be connected to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ power sourcing equipment (PSE) port. Cabling that is connected to a PoE+ PSE port is designed for intrabuilding use only.
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](http://www.crestron.com/How-To-Buy/Find-a-Representative) or contact us for additional information by visiting [www.crestron.com/contact/our-locations](http://www.crestron.com/contact/our-locations) for your local contact.

This product is covered under the Crestron standard limited warranty. Refer to [www.crestron.com/warranty](http://www.crestron.com/warranty) for full details.

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## HDMI

Specifications are subject to change without notice.

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