- *API for full control of the DM-NVX-E20-2G*
- *Two-gang wall plate design available in black or white finish*
- *FP-G2-DM Series decorator style faceplate required (sold separately)*
- *Powered via PoE or optional power pack (sold separately)*

The DM-NVX-E20-2G is an AV-over-IP wall plate encoder designed to transmit video with resolutions up to 4K60 4:2:0 over standard Gigabit Ethernet. Featuring secure web-based control and management, an HDMI® input, an analog audio input, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE support, the DM-NVX-E20-2G provides an encoder solution that offers price and performance optimization in a DM NVX® network AV installation of any size.[1, 2]

The DM-NVX-E20-2G is available in two models: DM-NVX-E20-2G-B-T (black textured) and DM-NVX-E20-2G-W-T (white textured).

Real-Time 4K60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-E20-2G 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.

Encoder Functionality

The DM-NVX-E20-2G encoder provides one HDMI input that enables 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] Compatible with the DM-NVX-D20, DM-NVX-D200, and other DM NVX products that can function as decoders, the DM-NVX-E20-2G can be used in any DM NVX network AV design.

NOTE: *If the DM-NVX-E20-2G is used with the DM-NVX-D10, the resolution of the DM-NVX-E20-2G must be configured so that it does not exceed the maximum resolution supported by the DM-NVX-D10.*

- *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*
- *Encoder functionality for use with the DM-NVX-D20, DM-NVX-D200, or other DM NVX® products that can function as decoders*
- *One HDMI® input*
- *Fixed or adaptive bit rate*
- *Analog audio 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-D20 or DM-NVX-D200*
- *Device control via 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*

It is recommended that the DM-NVX-E20-2G not be used with the DM-NVX-D10 in order to maintain the higher resolutions supported by the DM-NVX-E20-2G.

Fixed or Adaptive Bit Rate

The bit rate of a stream can be set to a fixed or adaptive bit rate. A fixed bit rate, also referred to as Constant Bit Rate (CBR), is user specified and can be set to a value ranging from 200 Mbps to 950 Mbps.[3]

Adaptive bit rate (ABR) enables the encoder to automatically set a fixed bit rate based on the input resolution of the stream. For example, the adaptive bit rate for a common resolution such as 1920x1080p@60Hz (1080p60) would automatically be set to 400 Mbps. Adaptive bit rate makes better use of the available bandwidth than a user-specified fixed bit rate.

The web interface or a control system can be used to set a fixed bit rate or to enable adaptive bit rate functionality.

Analog Audio Embedding

The unbalanced stereo line-level audio input enables a stereo audio source to be connected and combined with the HDMI input.

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 output via the primary AV stream.

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-E20-2G includes one RJ-45 1000BASE-T Ethernet port.[2] The port is PoE compliant, enabling the device to be powered via a PoE Ethernet switch.[4] For information about network requirements and guidelines, refer to the DM NVX AV-over-IP System Design Guide.

Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E20-2G to be connected directly to a DM-NVX-D20 or DM-NVX-D200 in order to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the DM-NVX-E20-2G is connected directly to the 1000BASE-T port of the decoder.

By default, point-to-point mode automatically detects whether the DM-NVX-E20-2G is connected directly to a decoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E20-2G and a decoder 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 CEC

Under the management of a control system, the DM-NVX-E20-2G can control a source device via CEC (Consumer Elecronics Control) over the HDMI input, potentially eliminating the need for dedicated control cables.

Web-Based Setup

Setup of the DM-NVX-E20-2G 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.

Two-Gang Wall Plate Design

The DM-NVX-E20-2G is designed to mount into a 2-gang U.S. electrical box or plaster ring (not included). Power is provided via PoE or the optional PW-2407WUL power pack (sold separately).[4]

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.

DM NVX® 4K60 4:2:0 Network AV Encoder, Wall Plate

Specifications

Encoding

Video Resolutions	HDMI with Deep Color and 4K60 4:2:0 support
Audio Formats	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
Bit Rates	Fixed: 200 to 950 Mbps[3] Adaptive: Based on input resolution of the stream
Streaming Protocols	RTP, SDP
Container	MPEG-2 transport stream (.ts)
Session Initiation	Multicast via secure RTSP
Copy Protection	HDCP 2.3, AES-128, PKI

Video

Input Signal Types	HDMI with Deep Color and 4K60 4:2:0 support[5] (Dual-Mode DisplayPort™ interface and DVI compatible[6])
Copy Protection	HDCP 2.3
Resolutions	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

Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible)[6], analog stereo
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
Analog-To-Digital 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: <0.0005% @ 1 kHz Stereo Separation: >90 dB

Communications

Ethernet	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
HDMI	HDCP 2.3 , EDID, CEC
DM NVX (via Ethernet)	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022

Connectors

Ethernet	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port;[2] PoE PD (powered device) port; IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant; Compatible with PoE compliant Ethernet switch or third-party PoE PSE[4]
HDMI INPUT	(1) HDMI Type A connector, female; HDMI digital video/audio input (DVI and Dual-Mode DisplayPort interface compatible)[6]
AUDIO IN	(1) 3.5 mm TRS mini phone jack; Unbalanced stereo line level audio input; Maximum Input Level: 2 Vrms; Input Impedance: 44k Ohms

DM NVX® 4K60 4:2:0 Network AV Encoder, Wall Plate

24V 0.75A	(1) 2-pin captive screw terminal block; 24 VDC power input; PW-2407WUL power pack (sold separately)
G	(1) M3 screw; Chassis ground lug

Controls and Indicators

Ethernet	(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 PoE or optional power pack (sold separately), lights amber while the device is booting and green when the device is operational
SETUP	(1) Red LED and (1) push button
RESET	(1) Recessed push button, reboots the device

Power

PoE	IEEE 802.3af Type 1 Class 3 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE
Power Pack (Optional)	Input: 100-240 VAC, 50/60 Hz Output: 0.75 A @ 24 VDC Model: PW-2407WUL (sold separately)
Power Consumption	9.2 W typical

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 95% RH (non-condensing)
Heat Dissipation	31.48 BTU/hr typical
Acoustic Noise	33 dBA typical

Enclosure

Construction	Metal housing and bracket with white or black polycarbonate label overlay
Mounting	Mounts into a 2-gang, 2 in. (51 mm) deep U.S. electrical box or plaster ring, requires an FP-G2-DM Series decorator style faceplate (sold separately)

Dimensions

Height	4.12 in. (105 mm)
Width	3.57 in. (91 mm)
Depth	2.13 in. (55 mm)

Weight

0.62 lb (0.29 kg)

Compliance

Regulatory Model: M202028005

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

Models

DM-NVX-E20-2G-B-T
DM NVX 4K60 4:2:0 Network AV Encoder, Wall Plate, Black Textured

DM-NVX-E20-2G-W-T
DM NVX 4K60 4:2:0 Network AV Encoder, Wall Plate, White Textured

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-E20-2G-B-T and DM-NVX-E20-2G-W-T product pages.

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-E20-2G 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.

CRESTRON®

3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.

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. 3D formats are not supported.

6. 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 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 contact us for additional information by visiting 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 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.

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HDMI

Specifications are subject to change without notice.

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Rev 10/03/22

.24 in.
(6.1 mm)

1.89 in.
(48 mm)

3.57 in.
(91 mm)

4.12 in.
(105 mm)

PWR

AUDIO IN

HDMI

HDMI IN

SETUP

RESET

CRESTRON

24 V
0.75A
PoE