



View this document in HTML  
[crestron.com/docs/9496](http://crestron.com/docs/9496)



Product Manual

DM NVX<sup>®</sup> AV-over-IP

Distribution Platform

Have feedback on this document? Contact [docfeedback@crestron.com](mailto:docfeedback@crestron.com).

The original language version of this document is U.S. English.  
All other languages are a translation of the original document.

**Regulatory Model:** M202234002, M202028003, M202013001, M201910003

Crestron product development software is licensed to Crestron dealers and Crestron Service Providers (CSPs) under a limited nonexclusive, nontransferable Software Development Tools License Agreement. Crestron product operating system software is licensed to Crestron dealers, CSPs, and end-users under a separate End-User License Agreement. Both of these Agreements can be found on the Crestron website at [www.crestron.com/legal/software\\_license\\_agreement](http://www.crestron.com/legal/software_license_agreement).

The product warranty can be found at [www.crestron.com/warranty](http://www.crestron.com/warranty).

The specific patents that cover Crestron products are listed online at [www.crestron.com/legal/patents](http://www.crestron.com/legal/patents).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

Crestron, the Crestron logo, .AV Framework, 3-Series, AirMedia, Crestron Home, Crestron Toolbox, DigitalMedia, DM, DM NAX, DM NVX, DM NVX Director, QuickSwitch HD, and XiO Cloud are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Safari is either a trademark or registered trademark of Apple, Inc. in the United States and/or other countries. Dante is either a trademark or registered trademark of Audinate Pty Ltd. in the United States and/or other countries. Dolby, Dolby Atmos, Dolby Digital, and Dolby Vision are either trademarks or registered trademarks of Dolby Laboratories Licensing Corporation 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. Chrome is either a trademark or registered trademark of Google Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance 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. Intertek is either a trademark or registered trademark of Intertek Group 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. Firefox is either a trademark or a registered trademark of the Mozilla Foundation in the United States and/or other countries. USB-C and USB Type-C are either trademarks or registered trademarks of USB Implementers Forum, Inc. 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. UL is either a trademark or registered trademark of Underwriters Laboratories, Inc. 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.

**HDMI**

**Dolby Atmos**

**dts x**

©2025 Crestron Electronics, Inc.



# Contents

- Getting Started** ..... **1**
  - Installation Content (Quick Start Guides) ..... 1
  - Specifications ..... 1
  - Web Interface Configuration ..... 1
  - Network Design and Configuration ..... 1
  - Point-to-Point DM NVX Streaming ..... 2
  - Change Encoder/Decoder Mode ..... 2
  - Starting a Network Stream ..... 3
  
- Overview** ..... **6**
  - Products ..... 6
  - DM-NVX-350 ..... 8
  - DM-NVX-351 ..... 15
  - DM-NVX-352 ..... 22
  - DM-NVX-360 ..... 29
  - DM-NVX-363 ..... 36
  - DM-NVX-384 ..... 43
  - DM-NVX-D10 ..... 49
  - DM-NVX-D20 ..... 53
  - DM-NVX-D200 ..... 57
  - DM-NVX-D30 ..... 61
  - DM-NVX-E10 ..... 65
  - DM-NVX-E20 ..... 69
  - DM-NVX-E30 ..... 73
  - DM-NVX-E760 ..... 78
  - DM-NVX-E20-2G ..... 83
  - DM-NVX-350C ..... 87
  - DM-NVX-351C ..... 94
  - DM-NVX-352C ..... 101
  - DM-NVX-360C ..... 108
  - DM-NVX-363C ..... 115
  - DM-NVX-384C ..... 122
  - DM-NVX-D30C ..... 127
  - DM-NVX-E30C ..... 131
  - DM-NVX-E760C ..... 135
  
- Specifications** ..... **140**
  - DM-NVX-350 Specifications ..... 141
  - DM-NVX-351 Specifications ..... 148
  - DM-NVX-352 Specifications ..... 155
  - DM-NVX-360 Specifications ..... 162
  - DM-NVX-363 Specifications ..... 169

DM-NVX-384 Specifications .....	176
DM-NVX-D10 Specifications .....	183
DM-NVX-D20 Specifications .....	187
DM-NVX-D200 Specifications .....	191
DM-NVX-D30 Specifications .....	195
DM-NVX-E10 Specifications .....	200
DM-NVX-E20 Specifications .....	204
DM-NVX-E30 Specifications .....	208
DM-NVX-E760 Specifications .....	213
DM-NVX-E20-2G Specifications .....	218
DM-NVX-350C Specifications .....	223
DM-NVX-351C Specifications .....	227
DM-NVX-352C Specifications .....	231
DM-NVX-360C Specifications .....	235
DM-NVX-363C Specifications .....	240
DM-NVX-384C Specifications .....	245
DM-NVX-D30C Specifications .....	250
DM-NVX-E30C Specifications .....	253
DM-NVX-E760C Specifications .....	257
<b>Installation .....</b>	<b>261</b>
DM-NVX-350, DM-NVX-351, and DM-NVX-352 Installation .....	262
In the Box .....	262
Mount the Device .....	263
Connect the Device .....	265
Observe the LED Indicators .....	268
Reset the Device .....	269
DM-NVX-360 and DM-NVX-363 Installation .....	270
In the Box .....	270
Mount the Device .....	271
Connect the Device .....	273
Observe the LED Indicators .....	276
Reset the Device .....	276
DM-NVX-384 Installation .....	278
In the Box .....	278
Mount the Device .....	279
Connect the Device .....	281
Observe the LED Indicators .....	283
Reset the Device .....	284
DM-NVX-D10, DM-NVX-D20, DM-NVX-E10, and DM-NVX-E20 Installation .....	285
In the Box .....	285
Mount the Device .....	286
Connect the Device .....	287
Observe the LED Indicators .....	289
Reset the Device .....	289
DM-NVX-D200 Installation .....	291

In the Box .....	291
Mount the Device .....	292
Connect the Device .....	294
Observe the LED Indicators .....	296
Reset the Device .....	296
DM-NVX-E20-2G Installation .....	297
In the Box .....	297
Install the Device into an Electrical Box .....	297
Connect the Device .....	297
Observe the LED Indicators .....	299
Reset the Device .....	299
DM-NVX-D30 and DM-NVX-E30 Installation .....	301
In the Box .....	301
Mount the Device .....	302
Connect the Device .....	304
Observe the LED Indicators .....	306
Reset the Device .....	306
DM-NVX-E760 Installation .....	308
In the Box .....	308
Mount the Device .....	309
Connect the Device .....	312
Observe the LED Indicators .....	314
Reset the Device .....	314
Card Installation .....	316
In the Box .....	316
Install the Device into a DMF-CI-8 .....	316
Connect the Device .....	318
Observe the LED Indicators .....	331
Reset the Device .....	334
<b>Configuration .....</b>	<b>336</b>
Configuration (DM-NVX-35X Models) .....	337
Web Interface Configuration .....	337
Action .....	340
Security .....	349
802.1X Configuration .....	356
Configuration (DM-NVX-36X Models) .....	358
Web Interface Configuration .....	358
Action .....	361
Status .....	370
Settings .....	376
Security .....	421
802.1X Configuration .....	428
Configuration (DM-NVX-38X Models) .....	430
Web Interface Configuration .....	430
Action .....	433

Status .....	442
Settings .....	448
Security .....	498
802.1X Configuration .....	505
Configuration (DM-NVX-D30, E30, and E760 Models) .....	507
Web Interface Configuration .....	507
Action .....	510
Status .....	519
Settings .....	525
Security .....	564
802.1X Configuration .....	571
Configuration (DM-NVX-D10, D20, D200, E10, and E20 Models) .....	573
Web Interface Configuration .....	573
Action .....	576
Status .....	584
Settings .....	590
Security .....	619
802.1X Configuration .....	626
<b>AV-over-IP Network Design .....</b>	<b>628</b>
Minimum Network Requirements .....	628
Network Design Overview .....	628
Network Topologies .....	630
Star .....	631
Tree .....	631
Daisy Chain .....	632
Other Topologies and Network Functionality .....	633
Multicast Network Traffic .....	633
Protocol Independent Multicast (PIM) .....	634
Network Security .....	635
Network Design Considerations .....	636
System Installation .....	637
Endpoint Installation .....	637
Network Installation .....	639
Crestron Service Provider Handoff .....	640
<b>Resources .....</b>	<b>641</b>
Crestron Support and Training .....	641
Programmer and Developer Resources .....	641
Product Certificates .....	641
Related Documentation .....	641

# Getting Started

Welcome to the DM NVX® AV-over-IP Product Manual. This one-stop-shop manual replaces documents for each DM NVX endpoint. If this is your first time setting up DM NVX, or you are looking for content from these replaced documents, please refer to the headings below to get your DM NVX system up and running smoothly.

- [Installation Content \(Quick Start Guides\) on page 1](#)
- [Specifications on page 1](#)
- [Web Interface Configuration on page 1](#)
- [Network Design and Configuration on page 1](#)
- [Point-to-Point DM NVX Streaming on page 2](#)
- [Change Encoder/Decoder Mode on page 2](#)
- [Starting a Network Stream on page 3](#)

## Installation Content (Quick Start Guides)

Installation and connection instructions previously covered in individual Quick Start guides are now contained in a dedicated section for each DM NVX device. Refer to [Installation on page 261](#) for a full list of the installation instructions covered in this manual, then select the desired model from the list.

## Specifications

The specifications for each DM NVX device are available on their respective product pages on the [Crestron website](#), as are downloadable PDF files. For convenient reference, the specifications for all models covered in this manual are also available under [Specifications on page 140](#).

## Web Interface Configuration

All information regarding how to use each device's web interface is now contained in a dedicated configuration section. Refer to [Configuration on page 336](#) for a full list of the configuration topics covered in this manual, then select the desired model from the list.

## Network Design and Configuration

Refer to [AV-over-IP Network Design on page 628](#) for the fundamentals of how to design and configure a network that can handle multicast, 1 Gbps AV-over-IP traffic.

# Point-to-Point DM NVX Streaming

DM NVX AV-over-IP devices are typically used as encoders and decoders as part of a wider AV-over-IP network-based matrix. However, DM NVX devices also have a built-in point-to-point streaming function that allows two units to be used as an extender pair with only a single CAT5e (or higher) connection between them.

This point-to-point feature is set up to autodetect a stream out of the box, so there is no need to access the device's web interface to make any changes. This feature provides a quick proof-of-concept for a given signal chain to validate HDCP or resolution compatibility between a video source and sink. Point-to-point streaming can also be a permanent installation method to use DM NVX devices as signal extenders rather than matrix endpoints.

For point-to-point streaming to work, these basic conditions must be met:

- Both devices must have compatible resolution capabilities.
  - For example, a DM-NVX-E20 encoder cannot stream 4K60 4:2:0 video to a DM-NVX-D10 decoder.
  - Refer to [Specifications on page 140](#) to confirm the capabilities of a given endpoint.
- One device must be an encoder and the other must be a decoder.
  - For devices that can operate in either mode, check the built-in LEDs to confirm which mode each device is in. To switch the operating mode of either device, refer to [Changing Encoder/Decoder Mode](#) below.
- The devices must be connected directly via 1000 BASE-T connections.
  - The SFP ports can be used for point-to-point streaming.
  - Some DM NVX devices feature a 100 BASE-TX port labeled **(10/100)** which will not provide sufficient link speeds to transmit or receive a DM NVX AV-over-IP signal.

Once these conditions are met and the DM NVX devices are powered on, point-to-point streaming from the encoder to the decoder should begin automatically.

The point-to-point feature can be disabled from the web interface of the DM NVX device. Refer to [Configuration on page 336](#) and select the desired model for more information.

## Change Encoder/Decoder Mode

Some DM NVX endpoints are capable of operating as either an encoder (transmitter) or decoder (receiver) - refer to [Specifications on page 140](#) for the capabilities of each DM NVX device model.

The mode of these devices can be changed directly from the hardware of the device without ever needing to access the web interface. These devices are all in decoder mode by default.

Changing the encoder/decoder mode on a room box model DM NVX device (models that do not end in "C") is most easily done with the HDMI output of the device connected to a display, though this is not required. To change the mode:

1. Hold the **SETUP** button for 10 seconds. If the device is connected to a display, a message will appear stating that the **SETUP** button must be pressed again to change the mode of the device.

2. Press the **SETUP** button again. Following a device reboot, the device will have swapped to encoder mode from decoder mode or vice versa.
3. Check the **TX** and **RX** LEDs to ensure the device is in the desired mode.

To change the encoder/decoder mode on a card-based DM NVX device (models ending in "C"), use the front-panel menu of the DMF-CI-8:

1. Access the Main Menu by pressing the **HOME** button.
2. Select **Cards**. For each card slot (1–8), the corresponding name of the card is listed.
3. Select the desired card. The card status and configuration menu appears on the display for the selected card. The name of the card is displayed at the top of the screen.
4. On the card status and configuration menu, select **Device Mode**.
5. For the **Mode** parameter, select **Receiver** or **Transmitter**. The default setting is **Receiver**. A prompt appears on the display to either **Apply** or **Exit**.
6. Select **Apply**. The card reboots. When the reboot process is complete, the corresponding **TX** or **RX** LED on the front panel illuminates green to indicate that the card is in transmitter (**TX**) or receiver (**RX**) mode.

## Starting a Network Stream

Once a DM NVX encoder is connected to a network and a video source is connected to it, its network stream can be initiated. This will allow the video from the encoder to be received by any number of decoders on the network.

**CAUTION:** This process assumes that the network is ready to receive multicast DM NVX AV-over-IP traffic. If the network is not properly configured to handle this traffic, starting a DM NVX stream can flood the network and take devices offline. Refer to [AV-over-IP Network Design on page 628](#) for details on designing and configuring a network to handle multicast AV-over-IP traffic.

To start a DM NVX stream:

1. Access the web interface of the encoder device.
2. Navigate to the **Settings** tab.

3. Select the **Stream** accordion to expand the **Stream** settings.

The screenshot shows a web interface for configuring a stream. The 'Stream' section is expanded, revealing several configuration options:

- Mode:** Transmitter
- Stream Type:** Pixel Perfect Processing (Default)
- Multicast Address:** 239.8.0.0
- Device Name:** DM-NVX-360-C442685B8F77
- Stream Location:** rtsp://172.30.160.42:554/live.sdp
- Status:** Stream started
- Resolution:** (field is empty)
- Preview:** A blue rectangular area with the text "NO VIDEO" in white, indicating that no video is being transmitted.

4. Enter a multicast address in the **Multicast Address** field.

**NOTE:** DM NVX devices can have a multicast transmit address anywhere in the range from 239.0.0.1 to 239.127.255.255. If multiple DM NVX encoders are present on the network, be sure the entered **Multicast Address** value is not already being used by another encoder.

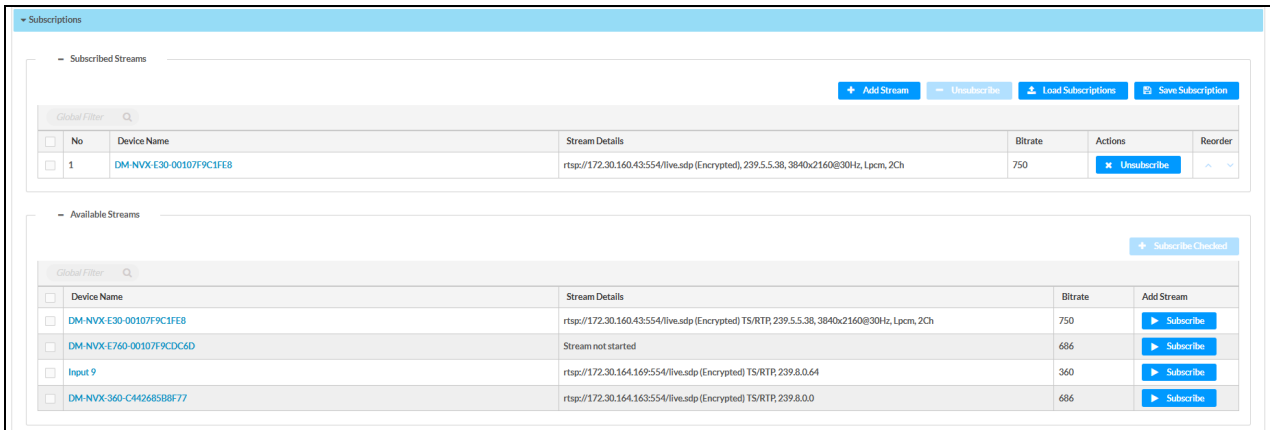
The DM NVX encoder will begin transmitting its video input signal as an AV-over-IP stream on the network at the specified multicast address.

To receive this DM NVX stream at a decoder:

1. Access the web interface of the decoder device.
2. Navigate to the **Settings** tab.




3. Select the **Subscriptions** accordion to expand the **Subscriptions** table



4. Select the **Subscribe** icon for the stream in the **Available Streams** table. If the stream is not discovered automatically, the address can also be manually entered by selecting **+ Add Stream** from above the **Subscribed Streams** table.
5. Select the **Routing** accordion and open the **Stream Routing** matrix.



6. For the desired **OUTPUT** row of the DM NVX device, select the Primary A/V icon  for the desired stream. Video will begin to pass.

# Overview

DM NVX® AV-over-IP network encoders and decoders transport video, audio, and USB signals over standard Gigabit Ethernet. A range of devices across the lineup provides the flexibility to support up to ultra high-definition 4K video with 60 Hz frame rates and 4:4:4 color sampling. With devices supporting Pixel Perfect Processing technology, a video signal is encoded, transported across the network, and decoded to achieve imperceptible end-to-end latency of less than 1 frame.

DM NVX technology also supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. This allows a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. The platform also leverages AES67 and natively supports DM NAX® Audio-over-IP networking to discretely extract and route audio signals to a broad range of AES67 compatible devices.

## Products

The following AV products are described in this product manual:

- Room Box Models
  - [DM-NVX-350 on page 8](#)
  - [DM-NVX-351 on page 15](#)
  - [DM-NVX-352 on page 22](#)
  - [DM-NVX-360C on page 108](#)
  - [DM-NVX-363 on page 36](#)
  - [DM-NVX-384 on page 43](#)
  - [DM-NVX-D10 on page 49](#)
  - [DM-NVX-D20 on page 53](#)
  - [DM-NVX-D200 on page 57](#)
  - [DM-NVX-D30 on page 61](#)
  - [DM-NVX-E10 on page 65](#)
  - [DM-NVX-E20 on page 69](#)
  - [DM-NVX-E30 on page 73](#)
  - [DM-NVX-E760 on page 78](#)
- Wall Plate Models
  - [DM-NVX-E20-2G on page 83](#)

- Card-Based Models
  - [DM-NVX-350C on page 87](#)
  - [DM-NVX-351C on page 94](#)
  - [DM-NVX-352C on page 101](#)
  - [DM-NVX-360C on page 108](#)
  - [DM-NVX-363C on page 115](#)
  - [DM-NVX-384C on page 122](#)
  - [DM-NVX-D30C on page 127](#)
  - [DM-NVX-E30C on page 131](#)
  - [DM-NVX-E760C on page 135](#)

# DM-NVX-350

The DM-NVX-350 is a compact AV over IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling a network AV installation of any size, the DM-NVX-350 includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder
- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay

- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE++, UPOE, or the included power pack

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-350 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-350 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-350 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-350 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-350 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## Autoswitching HDMI® Inputs

The DM-NVX-350 includes two HDMI inputs. Switching between the two inputs can be performed automatically using the built-in autoswitching mode, programmatically via a control system, manually using the built-in **INPUT SEL** button, or through a computer using a web browser. When used as a decoder mounted behind a typical conference room display device, the HDMI inputs provide a convenient way to connect a Crestron AirMedia® presentation gateway, video conferencing codec, or small form factor computer.<sup>3</sup>

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-350 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-350 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-350 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-350 is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-350 is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</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. In decoder mode, the DM-NVX-350 can receive both multichannel and 2-channel downmix signals from a DM-NVX-351, DM-NVX-351C, DM-NVX-363, or DM-NVX-363C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-350 includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a PoE++ or UPOE compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE.<sup>1, 8</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-351 device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the



DM-NVX-350, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>10</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>11</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-350 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-350 can control the display and source devices, 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-350 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-350 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 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 using PoE++, UPOE, or the included 100-240 V universal power pack.<sup>9</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-350 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-350 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-350 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. Refer to the "Power" specifications section for approved powering options.
9. The DM-NVX-350 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. The DM-NVX-350 is not compatible with the USB HID signal extender technology found in other Crestron DM products.

# DM-NVX-351

The DM-NVX-351 is a compact AV-over-IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling network installations both large and small, the DM-NVX-351 includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, surround sound to stereo downmixing, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder
- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing

- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio with downmixing
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE++, UPOE, or the included power pack

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-351 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-351 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-351 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-351 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-351 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## Autoswitching HDMI® Inputs

The DM-NVX-351 includes two HDMI inputs. Switching between the two inputs can be performed automatically using the built-in autoswitching mode, programmatically via a control system, manually using the built-in **INPUT SEL** button, or through a computer using a web browser. When used as a decoder mounted behind a typical conference room display device, the HDMI inputs provide a convenient way to connect a Crestron AirMedia® presentation gateway, video conferencing codec, or small form factor computer.<sup>3</sup>

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-351 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-351 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-351 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales

the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-351 is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-351 is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

## 7.1 Surround Sound Audio with Downmixing

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<sup>7</sup>. The DM-NVX-351 can decode the incoming multichannel surround sound signal, whether from the network or an HDMI input, and downmix that signal to stereo. The stereo downmix signal is automatically routed to the built-in analog output<sup>6</sup>, while the HDMI output can be configured to output either stereo or multichannel signals. As an encoder, the DM-NVX-351 distributes both stereo and multichannel signals simultaneously over the network, allowing either signal to be selected at any decoder on the network.

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>8</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-351 includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a PoE++ or UPOE compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE.<sup>1, 9</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-351 device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured



as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-351, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>10</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>11</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-351 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-351 can control the display and source devices, 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-351 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-351 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 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 using PoE++, UPOE, or the included 100-240 V universal power pack.<sup>9</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-351 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-351 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-351 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. The DM-NVX-351 does not downmix Dolby Atmos MAT 2.0 audio.
8. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. Refer to the "Power" specifications section for approved powering options.
10. The DM-NVX-351 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
11. The DM-NVX-351 is not compatible with the USB HID signal extender technology found in other Crestron DM products.

# DM-NVX-352

The DM-NVX-352 is a compact AV over IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling a network AV installation of any size, the DM-NVX-352 includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, native Dante® or AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder

- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- Dante® or AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE++, UPOE, or the included power pack

### 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-352 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-352 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-352 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-352 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-352 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## Autoswitching HDMI® Inputs

The DM-NVX-352 includes two HDMI inputs. Switching between the two inputs can be performed automatically using the built-in autoswitching mode, programmatically via a control system, manually using the built-in **INPUT SEL** button, or through a computer using a web browser. When used as a decoder mounted behind a typical conference room display device, the HDMI inputs provide a convenient way to connect a Crestron AirMedia® presentation gateway, video conferencing codec, or small form factor computer.<sup>3</sup>

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-352 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-352 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-352 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-352 is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-352 is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</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. In decoder mode, the DM-NVX-350 can receive both multichannel and 2-channel downmix signals from a DM-NVX-351,

DM-NVX-351C, DM-NVX-363, or DM-NVX-363C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.

**NOTE:** The DSP of the DM-NVX-352 is compatible with Dolby Atmos audio using True HD or Dolby Digital Plus audio formats.

## Dante® or AES67 Audio Embedding or De-embedding

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

In DM NVX encoder mode, the Dante or AES67 received audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, the received Dante or AES67 audio stream can be combined with the video and then output via the HDMI output and analog audio output.

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

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-352 includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a PoE++ or UPOE compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE.<sup>1, 8</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit

Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-352 device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-352, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>10</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>11</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-350 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-350 can control the display and source devices, 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-352 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-352 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 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 using PoE++, UPOE, or the included 100-240 V universal power pack.<sup>9</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-352 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-352 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-352 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. Refer to the "Power" specifications section for approved powering options.
9. The DM-NVX-352 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. The DM-NVX-352 is not compatible with the USB HID signal extender technology found in other Crestron DM products.



# DM-NVX-360

The DM-NVX-360 is a compact AV-over-IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling a network AV installation of any size, the DM-NVX-360 includes features such as secure web-based control and management, a scaling HDMI® output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI® input
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing

- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-360 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-360 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-360 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>1</sup>
- As a decoder, the DM-NVX-360 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>1</sup>

The DM-NVX-360 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## HDMI® Input

The DM-NVX-360 includes one HDMI input. When the DM-NVX-360 is used as a decoder mounted behind a typical conference room display device, the HDMI input provides a convenient way to connect to a Crestron AirMedia® presentation gateway, videoconferencing codec, or small form factor computer.<sup>1</sup>

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-360 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-360 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>1, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-360 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface

and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-360 is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-360 is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</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. In decoder mode, the DM-NVX-360 can receive both multichannel and 2-channel downmix signals from a DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.<sup>6</sup>

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-360 includes two RJ-45 100BASE-T LAN ports (Ethernet ports 1 and 2), one RJ-45 100BASE-TX port (Ethernet port 3), and one SFP port (Ethernet port 4). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 4 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a PoE+ compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE.<sup>1, 8</sup>

An RJ-45 100BASE-TX port is included for connection to a dedicated audio network or for use as a convenience port.

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 100BASE-T Ethernet port of an encoder is connected directly to a 100BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-360 device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured

as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-360, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>9</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>10</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs. DM NUX, USB-NX2, and USB-EXT DM devices do not support Layer 3.

In addition to USB 2.0 HOST and DEVICE ports, the DM-NVX-360 includes a USB 2.0 HID port that can provide hot key functionality when enabled via the web interface or a control system. When the DM NVX device is operating as a receiver, the HID port can detect a series of hot key sequences on a keyboard and route USB traffic to the control system and then to selected source devices (for example, PCs).

## Device Control

The DM-NVX-360 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-360 can control the display and source devices, 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-360 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-360 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 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 using PoE+ or the optional [PW-2412WU](#) power pack (sold separately).<sup>8</sup>

### Notes:

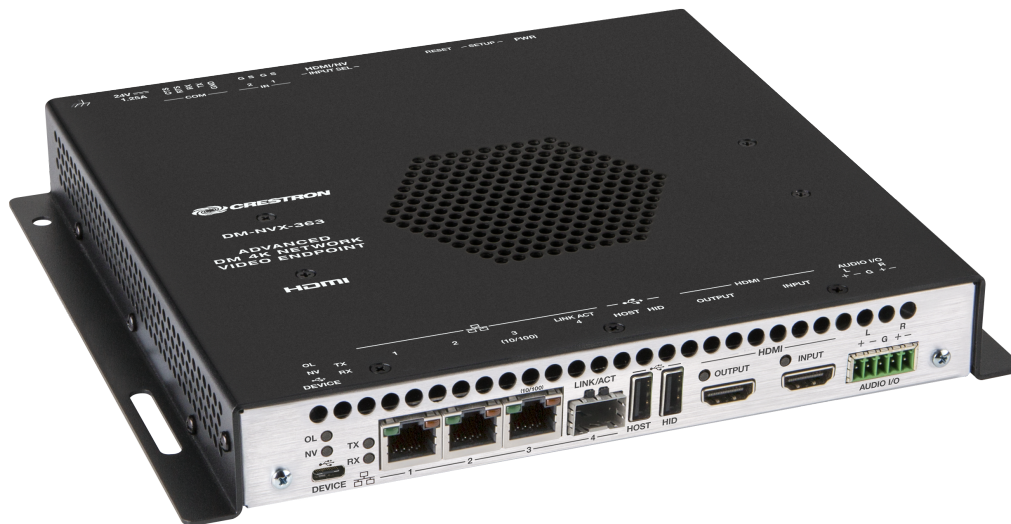
1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-360 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-360 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-360 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both. Analog audio output is functional only when the DM-NVX-360 is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C.
7. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. Refer to the "Power" specifications section for approved powering options.
9. The DM-NVX-360 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.



# DM-NVX-363

The DM-NVX-363 is a compact AV-over-IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling a network AV installation of any size, the DM-NVX-363 includes features such as secure web-based control and management, a scaling HDMI® output, video wall processing, an analog audio input or output, surround sound audio with downmixing, native Dante® and AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI® input
- One HDMI output with 4K60 4:4:4 scaler



- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio with downmixing
- Dante® or AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-363 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-363 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-363 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-363 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-363 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## HDMI® Input

The DM-NVX-363 includes one HDMI input. When the DM-NVX-363 is used as a decoder mounted behind a typical conference room display device, the HDMI input provides a convenient way to connect to a Crestron AirMedia® presentation gateway, videoconferencing codec, or small form factor computer.<sup>3</sup>

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-363 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-363 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-363 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-363 is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-363 is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.

### 7.1 Surround Sound Audio with Downmixing

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<sup>6</sup>. The DM-NVX-363 can decode the incoming multichannel surround sound signal, whether from the network or an HDMI input, and downmix that signal to stereo. The stereo downmix signal is automatically routed to the built-in analog output<sup>7</sup>, while the HDMI output can be configured to output either stereo or multichannel signals. As an encoder, the distributes both stereo and multichannel signals simultaneously over the network, allowing either signal to be selected at any decoder on the network.

**NOTE:** The DSP of the DM-NVX-363 is compatible with Dolby Atmos audio using True HD or Dolby Digital Plus audio formats.

## Dante® and DM NAX® Audio Embedding or De-embedding

Dante and AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) allows the selected audio source to be transmitted as a 2-channel Dante or AES67 source while another 2-channel Dante or AES67 audio stream is received from a Crestron DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received Dante or AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, the received Dante or AES67 audio stream can be combined with the video and then output via the HDMI output and analog audio output.

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

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>8</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-363 includes two RJ-45 1000BASE-T ports (Ethernet ports 1 and 2), one RJ-45 100BASE-TX port (Ethernet port 3), and one SFP port (Ethernet port 4). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron [SFP-1G](#) Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>3</sup>

Ethernet port 1, 2, or 4 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an AirMedia gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a POE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE (power sourcing equipment).<sup>2, 9</sup>

An RJ-45 100BASE-TX port is included for connection to a dedicated audio network or for use as a convenience port.

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit

Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-363 device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-363, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>10</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>11</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs. DM NUX, USB-NX2, and USB-EXT DM devices do not support Layer 3.

In addition to USB 2.0 HOST and DEVICE ports, the DM-NVX-363 includes a USB 2.0 HID port that can provide hot key functionality when enabled via the web interface or a control system. When the DM NVX device is operating as a receiver, the HID port can detect a series of hot key sequences on a keyboard and route USB traffic to the control system and then to selected source devices (for example, PCs).

## Device Control

The DM-NVX-363 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-363 can control the display and source devices, 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-363 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 Appliance

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.

### Low-Profile Installation

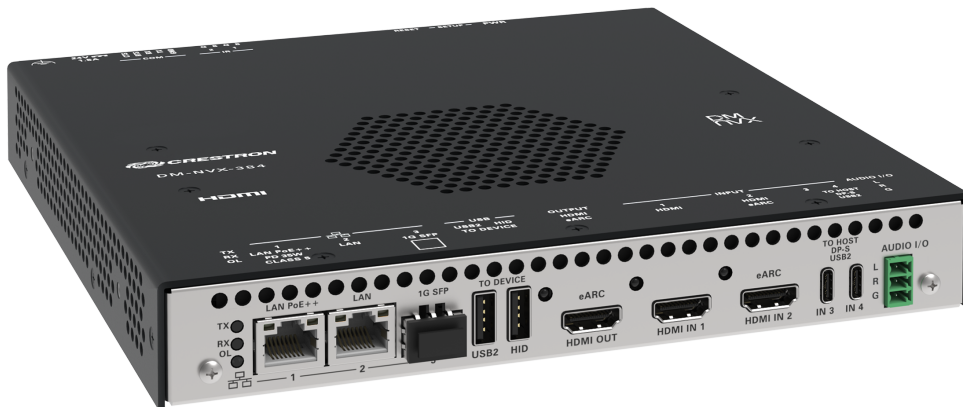
The DM-NVX-363 mounts conveniently to a flat surface or rack rail, and fits easily behind a flat panel display, above a ceiling-mounted projector, beneath a tabletop, or inside a lectern, AV cart, or equipment cabinet. All connectors and LED indicators are positioned on the front and rear of the device, offering optimal access and visibility for a clean, serviceable installation. Power is provided using PoE+ or the optional [PW-2412WU](#) power pack (sold separately).<sup>9</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-363 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-363 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-363 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The DM-NVX-363 does not down-mix Dolby Atmos MAT 2.0 audio.
7. The analog audio port can function as an input or output, not both.
8. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. Refer to the "Power" specifications section for approved powering options.
10. The DM-NVX-363 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
11. USB 2.0 extension and switching over LAN may not work when directly connecting a host PC's USB-C port to a DM-NVX-36X series endpoint's USB-C port. This is a known hardware limitation. Connect the host PC's USB-A port (if available) to the DM NVX endpoint using a USB-A to USB-C cable. A USB OTG USB-C to USB-A adapter may also be used at the host PC's USB-C port, which would be connected to the DM NVX endpoint using a USB-A to USB-C cable.

# DM-NVX-384

The DM-NVX-384 is a compact DM NVX® AV-over-IP encoder/decoder designed to function as either a transmitter or receiver. Capable of handling a network AV installation of any size, the DM-NVX-384 includes features such as secure web-based control and management, a scaling HDMI output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, surround sound audio, support for copper and fiber-optic Ethernet connectivity, and USB 2.0 and KVM integration.<sup>1, 2</sup>



- Two HDMI® and two USB-C® inputs
- 4K60 4:4:4 video over standard Gigabit Ethernet
- Support for 5K Wide (16:9), Ultra-Wide (21:9), and Super-Wide (32:9) resolutions
- 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding



- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- Streamlined management using DM NVX Director® virtual switching appliances
- .AV Framework™ technology support
- XiO Cloud® service support
- Crestron Home® OS support
- Compact, surface-mountable design
- Powered via PoE++ or optional power pack (sold separately)

## HDMI® and USB-C® 4x1 Input Switching

The DM-NVX-384 includes two HDMI inputs and two USB-C inputs that comprise a 4x1 input switcher. When used as a decoder mounted behind a typical conference room display device, the HDMI input provides a convenient way to connect to a Crestron [AirMedia®](#) presentation gateway, video-conferencing codec, or small form factor computer. The USB-C inputs allow for a DisplayPort™ Alt Mode video connection to laptops that do not feature an HDMI connection. The USB-C inputs also pass USB 2.0 data back and forth from the connected host PC and other DM NVX or DM NUX endpoints.

Switching between the four inputs can be performed automatically using auto-switching mode, programmatically via a control system, or through the web interface.

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) enables traversing multiple network routers for optimal flexibility.

## Support for 5K Resolutions

The DM-NVX-384 introduces support for 5K video resolutions including 5K Wide (5120×2880), 5K Ultra-Wide 5120 × 2160, and 5K Super-Wide 5120 × 1440, expanding the DM NVX product family's compatibility with the latest generation of computers, monitors, and displays.



## Pixel Perfect Processing Technology

A DM NVX system incorporates Pixel Perfect Processing technology, which provides flawless video transport in all applications. Depending on the operating mode, the DM-NVX-384 can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-384 is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-384 allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>1</sup>
- As a decoder, the DM-NVX-384 receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>1</sup>

The DM-NVX-384 provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or can be changed by using the built-in **SETUP** button.

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-384 is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-384 is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>1, 4</sup>

## 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 eight wide by eight high.

## Text Overlay

The DM-NVX-384 enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Analog Audio Embedding or De-embedding

An unbalanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

## 7.1 Surround Sound Audio with Downmixing

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. In decoder mode, the DM-NVX-384 can receive both multichannel and 2-channel downmix signals from a DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.<sup>6</sup>

### AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

### Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>7</sup>

### Copper and Fiber Ethernet Connectivity

The DM-NVX-384 includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image. Port 1 is also capable of receiving power from a PoE++ compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE.<sup>1, 8</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

### USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **TO HOST** and **TO DEVICE** ports are provided on the DM-NVX-384, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>9</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **TO DEVICE** port of up to seven remote DM NVX endpoints to the **TO HOST** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB-over-Ethernet devices (DM-NUX-L2 or DM-NUX-R2, sold separately), which can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX and DM NUX devices under the management of a control system.

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-384 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display, camera, or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-384 can control the display and source devices, 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-384 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 a DM NVX Director Virtual Switching Appliance

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.

## Low-Profile Installation

The DM-NVX-384 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 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 using PoE++ or the optional [PW-2420RU](#) power pack (sold separately).<sup>8</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-384 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-384 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

3. 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.
4. When the DM-NVX-384 is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. Refer to the "Power" specifications section for approved powering options.
9. The DM-NVX-384 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.

# DM-NVX-D10

The DM-NVX-D10 is a compact AV over IP decoder designed to receive video with resolutions up to 1080p 4:4:4 over standard Gigabit Ethernet. Featuring secure web-based control and management, an HDMI® output, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE support, the DM-NVX-D10 provides a decoder solution that offers price and performance optimization in a DM NVX® network AV installation of any size.<sup>1</sup>



- Support of video resolutions up to 1080p 4:4:4 over standard Gigabit Ethernet
- Real-time video performance over the network
- Enterprise-grade security including 802.1X, Active Directory® credential management, TLS, and AES-128
- HDCP 1.4 compliant
- Decoder functionality designed for use with the DM-NVX-E10 encoder, with support for other DM NVX® products that can function as encoders
- One HDMI® output
- Analog audio de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity with PoE support
- Automatic point-to-point connectivity with the DM-NVX-E10
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE or optional power pack (sold separately)

## Real-Time 1080p60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-D10 ensures real-time, full-motion 1080p60 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

The DM-NVX-D10 provides decoder functionality designed for use with the DM-NVX-E10 encoder. Both the DM-NVX-D10 and DM-NVX-E10 support resolutions up to 1080p60. The DM-NVX-D10 receives a signal from the DM-NVX-E10 and feeds it to a local display device via the HDMI output.

**NOTE:** In addition to the DM-NVX-E10, the DM-NVX-D10 is also interoperable with other DM NVX products that can function as encoders. The resolution of the encoder must be configured so that it does not exceed the maximum resolution of the DM-NVX-D10. If the DM-NVX-D10 is used with a DM NVX encoder other than the DM-NVX-E10 or DM-NVX-E20 Series, the stream type of the encoder must also be configured to interoperate with the DM-NVX-D10. Configuration of the encoder is accomplished by using the web interface or a control system.

It is recommended that the DM-NVX-D10 not be used with 4K60 4:4:4 encoders (for example, the DM-NVX-38x[C] Series) or the 4K60 4:2:0 encoders (DM-NVX-E20 Series) in order to maintain the higher resolutions supported by the 4K60 4:4:4 and 4:2:0 encoders.

The HDMI output of the DM-NVX-D10 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 can be adjusted by using the web interface or a control system.<sup>2</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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-D10 includes one RJ-45 1000BASE-T Ethernet port.<sup>1</sup> The port is PoE compliant, enabling the device to be powered via a PoE Ethernet switch.<sup>3</sup> For information about network requirements and guidelines, refer to the [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-D10 to be connected directly to a 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-D10 is connected directly to the 1000BASE-T port of the DM-NVX-E10. By default, point-to-point mode automatically detects whether a DM-NVX-D10 is connected directly to the DM-NVX-E10 or to a 1000BASE-T switch. When a direct connection between the DM-NVX-D10 and DM-NVX-E10 is detected, the devices operate in point-to-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

The DM-NVX-D10 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-D10 can control the display and source devices, 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-D10 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-D10 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>3</sup>

### Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-D10 is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. The analog audio output is functional only when the DM-NVX-D10 is receiving a 2-channel stereo input signal.
3. 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 connects to a PoE PSE port is designed for intrabuilding use only.



# DM-NVX-D20

The DM-NVX-D20 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, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE support, the DM-NVX-D20 provides a decoder solution that offers price and performance optimization in a DM NVX network AV installation of any size.<sup>1, 2</sup>



- 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 compliant
- Decoder functionality designed for use with the DM-NVX-E20 or DM-NVX-E10, with support for other DM NVX® products that can function as encoders
- One HDMI® output
- Analog audio de-embedding
- 7.1 surround sound audio support
- 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 via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE or optional power pack (sold separately)

## Real-Time 4K60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-D20 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

The DM-NVX-D20 provides decoder functionality designed for use with the DM-NVX-E20 or DM-NVX-E10 encoder. The DM-NVX-D20 supports resolutions up to 4K60 4:2:0 including 4K30 4:4:4. The DM-NVX-D20 receives a signal from the DM-NVX-E20 or DM-NVX-E10 and feeds it to a local display device via the HDMI output.

**NOTE:** In addition to the DM-NVX-E20 or DM-NVX-E10, the DM-NVX-D20 is also interoperable with other DM NVX products that can function as encoders. If the DM-NVX-D20 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-D20. The resolution of the encoder must also be configured so that it does not exceed the maximum resolution of the DM-NVX-D20. Configuration of the encoder is accomplished by using the web interface or a control system.

It is recommended that the DM-NVX-D20 not be used with 4K60 4:4:4 encoders (for example, the DM-NVX-38x[C] Series) in order to maintain the higher resolutions supported by the 4K60 4:4:4 encoders.

The HDMI output of the DM-NVX-D20 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 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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-D20 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 [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-D20 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-D20 is connected directly to the 1000BASE-T port of the encoder. By default, point-to-point mode automatically detects whether a DM-NVX-D20 is connected directly to the encoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-D20 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

The DM-NVX-D20 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-D20 can control the display and source devices, 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-D20 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-D20 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>

### 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 over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-D20 is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
3. The analog audio output is functional only when the DM-NVX-D20 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 connects to a PoE PSE port is designed for intrabuilding use only.

# DM-NVX-D200

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>



- 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 compliant
- Decoder functionality designed for use with the DM-NVX-E20 or DM-NVX-E10, with 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 support
- 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 via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

## 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.

**NOTE:** 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.

It is recommended that the DM-NVX-D200 not be used with 4K60 4:4:4 encoders (for example, the DM-NVX-38x[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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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 [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

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

The DM-NVX-D200 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-D200 can control the display and source devices, 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 Appliance

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.

### Low-Profile Installation

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>

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 over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-D200 is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ 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 connects to a PoE+ PSE port is designed for intrabuilding use only.



# DM-NVX-D30

The DM-NVX-D30 is a compact AV over IP decoder designed to function as a receiver. Featuring secure web-based control and management, an HDMI® output, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE+ support, the DM-NVX-D30 offers a decoder solution for a DM NVX network AV installation of any size.<sup>1</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 2</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Decoder functionality for use with DM NVX® products that can function as encoders
- One HDMI® output
- Image preview
- Background image for on-screen display
- Analog audio de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding

- Copper Ethernet connectivity with PoE+ support
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

### 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-D30 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 Gbps 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-D30 is a basic decoder that receives a signal from a DM NVX encoder and feeds it to a local display device via the HDMI output. The DM-NVX-D30 can quickly and easily switch among multiple encoders on the network. Compatible with DM NVX products that can function as encoders, the DM-NVX-D30 can be used in any DM NVX network AV design.

**NOTE:** The HDMI output of the DM-NVX-D30 does not support video scaling.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

An image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## 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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-D30 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 [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-D30 to be connected directly to a DM NVX 4K60 4:4:4 encoder to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the decoder is connected directly to a 1000BASE-T port of an encoder.

By default, point-to-point mode automatically detects whether the DM-NVX-D30 is connected directly to a DM NVX 4K60 4:4:4 encoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-D30 and an encoder is detected, the devices operate in point-to-point mode without the need for additional configuration; however, a control system is required for CEC (Consumer Electronics Control), RS-232, and IR control.

## Device Control

The DM-NVX-D30 includes built-in **COM** (RS-232) and **IR** ports for control of the connected display or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-D30 can control the display and source devices, 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-D30 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-D30 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>

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 over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-D30 is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
3. The analog audio output is functional only when the DM-NVX-D30 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 connects to a PoE+ PSE port is designed for intrabuilding use only.

# DM-NVX-E10

The DM-NVX-E10 is a compact AV-over-IP encoder designed to transmit video with resolutions up to 1080p 4:4:4 over standard Gigabit Ethernet. Featuring secure web-based control and management, an HDMI® input, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE support, the DM-NVX-E10 provides an encoder solution that offers price and performance optimization in a DM NVX network AV installation of any size.<sup>1</sup>



- Support of video resolutions up to 1080p 4:4:4 over standard Gigabit Ethernet
- Real-time video performance over the network
- Enterprise-grade security including 802.1X, Active Directory® credential management, TLS, and AES-128
- HDCP 1.4 compliant
- Encoder functionality for use with the DM-NVX-D10 or other DM NVX® products that can function as decoders
- One HDMI® input
- Fixed or adaptive bit rate
- Analog audio de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity with PoE support
- Automatic point-to-point connectivity with the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE or optional power pack (sold separately)

## Real-Time 1080p60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-E10 ensures real-time, full-motion 1080p60 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-E10 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.<sup>1</sup> Compatible with the DM-NVX-D10 and other DM NVX products that can function as decoders, the DM-NVX-E10 can be used in any DM NVX network AV-over-IP design.

## 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.

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 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>2</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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-E10 includes one RJ-45 1000BASE-T Ethernet port.<sup>1</sup> The port is PoE compliant, enabling the device to be powered via a PoE Ethernet switch.<sup>3</sup> For information about network requirements and guidelines, refer to the [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E10 to be connected directly to the DM-NVX-D10, 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-E10 is connected directly to the 1000BASE-T port of the decoder. By default, point-to-point mode automatically detects whether the DM-NVX-E10 is connected directly to a decoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E10 and the 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

The DM-NVX-E10 includes built-in **COM** (RS-232) and **IR** ports for control of the connected video source or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-E10 can control the display and source devices, potentially eliminating the need for dedicated serial cables or IR emitters.

## Web-Based Setup

Setup of the DM-NVX-E10 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-E10 mounts conveniently to a flat surface or rack rail and fits easily beneath a tabletop or inside a lectern, 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>3</sup>

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-E10 is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. The analog audio output is functional only when the DM-NVX-E10 is receiving a 2-channel stereo input signal.
3. 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 connects to a PoE PSE port is designed for intrabuilding use only.



# DM-NVX-E20

The DM-NVX-E20 is a compact AV-over-IP 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 output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE support, the DM-NVX-E20 provides an encoder solution that offers price and performance optimization in a DM NVX network AV installation of any size.<sup>1, 2</sup>



- 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 compliant
- 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 de-embedding
- 7.1 surround sound audio support
- 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 RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE or optional power pack (sold separately)

## Real-Time 4K60 Video Performance

Engineered for demanding conference room and classroom applications, the DM-NVX-E20 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 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.<sup>1</sup> Compatible with the DM-NVX-D20, DM-NVX-D200, and other DM NVX products that can function as decoders, the DM-NVX-E20 can be used in any DM NVX network AV-over-IP design.

**NOTE:** If the DM-NVX-E20 is used with the DM-NVX-D10, the resolution of the DM-NVX-E20 must be configured so that it does not exceed the maximum resolution supported by the DM-NVX-D10. It is recommended that the DM-NVX-E20 not be used with the DM-NVX-D10 in order to maintain the higher resolutions supported by the DM-NVX-E20.

## 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.<sup>3</sup>

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 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>4</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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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 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>5</sup> For information about network requirements and guidelines, refer to the [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E20 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 is connected directly to the 1000BASE-T port of the decoder.

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

The DM-NVX-E20 includes built-in **COM** (RS-232) and **IR** ports for control of the connected video source or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-E20 can control the display and source devices, potentially eliminating the need for dedicated serial cables or IR emitters.

## Web-Based Setup

Setup of the DM-NVX-E20 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-E20 mounts conveniently to a flat surface or rack rail and fits easily beneath a tabletop or inside a lectern, 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>5</sup>

### 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 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 minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. The analog audio output is functional only when the DM-NVX-E20 is receiving a 2-channel stereo input signal.
5. 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 connects to a PoE PSE port is designed for intrabuilding use only.

# DM-NVX-E30

The DM-NVX-E30 is a compact AV over IP encoder designed to function as a transmitter. Featuring secure web-based control and management, an HDMI® input, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity with PoE+ support, the DM-NVX-E30 offers an encoder solution for a DM NVX network AV installation of any size.<sup>1</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 2</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Encoder functionality for use with DM NVX® products that can function as decoders
- One HDMI® input
- Image preview
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio de-embedding

- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity with PoE+ support
- Automatic point-to-point connectivity
- Device control via RS-232, IR, and CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE+ or optional power pack (sold separately)

### 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-E30 can encode 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.

### Encoder Functionality

The DM-NVX-E30 is a basic encoder with one HDMI input 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.<sup>2</sup> Compatible with DM NVX products that can function as decoders, the DM-NVX-E30 can be used in any DM NVX network AV design.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Test Pattern Generator

The built-in test pattern generator can be used during setup to ensure that video streaming is functional and can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

The bit rate of a transmitting DM NVX stream can be set to fixed, adaptive, or variable:

- 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.<sup>3</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## 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>4</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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-E30 includes one RJ-45 1000BASE-T Ethernet port.<sup>1</sup> The port is PoE+ compliant, enabling the device to be powered via a PoE+ Ethernet switch.<sup>5</sup> For information about network requirements and guidelines, refer to the [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E30 to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the encoder is connected directly to a 1000BASE-T port of a decoder.

By default, point-to-point mode automatically detects whether the DM-NVX-E30 is connected directly to a DM NVX 4K60 4:4:4 decoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E30 and a decoder is detected, the devices operate in point-to-point mode without the need for additional configuration; however, a control system is required for CEC (Consumer Electronics Control), RS-232, and IR control.

## Device Control

The DM-NVX-E30 includes built-in **COM** (RS-232) and **IR** ports for control of the connected video source or other devices under the management of a control system. Additional control capability is provided by CEC over the HDMI connections. Under the management of a control system, the DM-NVX-E30 can control the display and source devices, potentially eliminating the need for dedicated serial cables or IR emitters.

## Web-Based Setup

Setup of the DM-NVX-E30 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 Appliance

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.

## Low-Profile Installation

The DM-NVX-E30 mounts conveniently to a flat surface or rack rail and fits easily beneath a tabletop or inside a lectern, 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>5</sup>

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-E30 is provided for connection to an Ethernet network or device—the port cannot be connected to the DM® port of other Crestron devices.

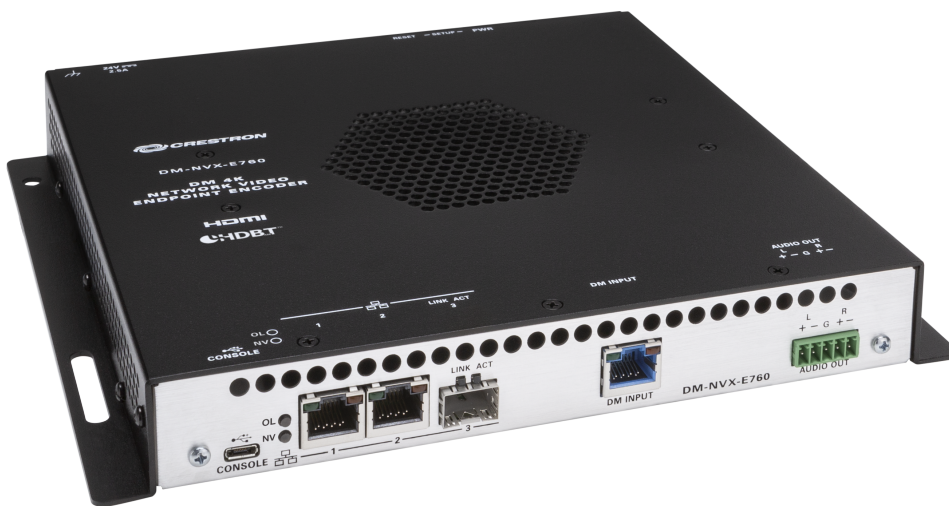
A nonblocking network is required for DM NVX devices.

3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. The analog audio output is functional only when the DM-NVX-E30 is receiving a 2-channel stereo input signal.
5. 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 connects to a PoE+ PSE port is designed for intrabuilding use only.

# DM-NVX-E760

The DM-NVX-E760 is a compact AV-over-IP encoder designed to function as a transmitter. The DM-NVX-E760 includes a DM® input that provides interoperability with DM 8G+® output devices and DM Lite® transmitters. Certified using HDBaseT® technology, the DM input is also compatible with third-party HDBaseT products.

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 2</sup>



- 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 2.3 compliant
- Encoder functionality for use with DM NVX® products that can function as decoders
- DM® input for interoperability with DM 8G+® output devices and DM Essentials transmitters, including DM 8G+ and DM Essentials wall plate transmitters
- HDBaseT® certification
- Image preview
- Test pattern generator

- Fixed, adaptive, or variable bit rate
- Analog audio de-embedding
- 7.1 surround sound audio
- AES67 audio embedding and de-embedding
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Compact, surface-mountable design
- Powered via PoE++, UPOE, or the included power pack

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-E760 can encode 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 Gbps network at resolutions 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.

## Encoder Functionality

The DM-NVX-E760 is an encoder that is compatible with DM NVX products that can function as decoders. The DM-NVX-E760 enables AV signals from the DM input to be transmitted over the network to one or many decoders. Encoder functionality of the DM-NVX-E760 can be used in any DM NVX network AV design.

## Interoperability with DM 8G+ Output Devices and DM Essentials Transmitters

The DM input of the DM-NVX-E760 can be connected to the DM 8G+ output of a DM switcher, transmitter, or other DM device. Supported DM 8G+ output devices are the DMC-4KZ-CO-HD and DMB-4K-O-C of DM switchers, the DM-TX-4KZ-100-C-1G transmitter, and the DMPS3-4K-350-C and DMPS3-4K-250-C presentation systems.

The DM input can also be connected to the DM Essentials port of a DM Essentials transmitter.

## HDBaseT Certification

Crestron DM 8G+ technology of the DM input is designed using [HDBaseT Alliance](#) specifications, ensuring interoperability with other HDBaseT certified products. The DM input of the DM-NVX-E760 can be connected directly to an HDBaseT compliant source. The DM-NVX-E760 provides the capability to bridge an HDBaseT system with AV-over-IP, resulting in a hybrid system design and a smooth migration path for existing DM or HDBaseT solutions. Investment protection is achieved for applications that require integration of AV-over-IP with existing HDBaseT systems or expansion of an existing room system for broader distribution.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by the DM input of the DM-NVX-E760. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Test Pattern Generator

The built-in test pattern generator can be used during setup to ensure that video streaming is functional and can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM-NVX-E760 can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>3</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio De-embedding

The analog audio output provides a balanced or unbalanced stereo line level signal to feed a local sound system or sound bar. The output volume is adjustable using the web interface or a control system.<sup>4</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.

### DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) allows the audio of the HDBaseT source to be transmitted as a 2-channel AES67 stream while another 2-channel AES67 audio stream is received from a Crestron DM NAX device. The received AES67 audio stream can be output via the analog audio output.

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

### Copper and Fiber Ethernet Connectivity

The DM-NVX-E760 includes two RJ-45 1000BASE T Ethernet ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron [SFP-1G](#) Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. The remaining Ethernet ports can be used to provide connections to local network devices or to daisy-chain multiple endpoints.

Ethernet port 1 is PoE++ and UPOE compliant and can be powered from PoE++ power sourcing equipment such as a PoE++ or UPOE compliant Ethernet switch.

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

### Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

### Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E760 to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video and audio. Rather than being connected to an Ethernet switch, a 1000BASE-T Ethernet port of the DM-NVX-E760 is connected directly to a 1000BASE-T port of a decoder.

By default, point-to-point mode automatically detects whether the DM-NVX-E760 is connected directly to a DM NVX 4K60 4:4:4 decoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E760 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.

### Web-Based Setup

Setup of the DM-NVX-E760 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 a DM NVX Director Virtual Switching Appliance

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.

## Low-Profile Installation

The DM-NVX-E760 mounts conveniently to a flat surface or rack rail and fits easily beneath a tabletop or inside a lectern, 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++, UPOE, or the included [PW-2420RU](#) power pack.

### 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 over 1000BASE-T Ethernet (copper) is unshielded CAT5e. Ethernet ports 1 and 2 are used for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. The analog audio output is functional only when the DM-NVX-E760 is receiving a 2-channel stereo input signal.



# DM-NVX-E20-2G

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.<sup>1, 2</sup>

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



- 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 compliant
- 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 support
- 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 via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Two-gang wall plate design, black finish
- FP-G2-DM Series decorator style faceplate required (sold separately)
- Powered via PoE or optional power pack (sold separately)

## 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.<sup>1</sup> Compatible with the DM-NVX-D20, DM-NVX-D200, and other DM NVX products that can function as decoders, the DM-NVX-E20 can be used in any DM NVX network AV-over-IP 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. 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.<sup>3</sup>

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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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.<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 [AV-over-IP Network Design on page 628](#).

## 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 the 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 Electronics 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 Appliance

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.

## 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).<sup>4</sup>

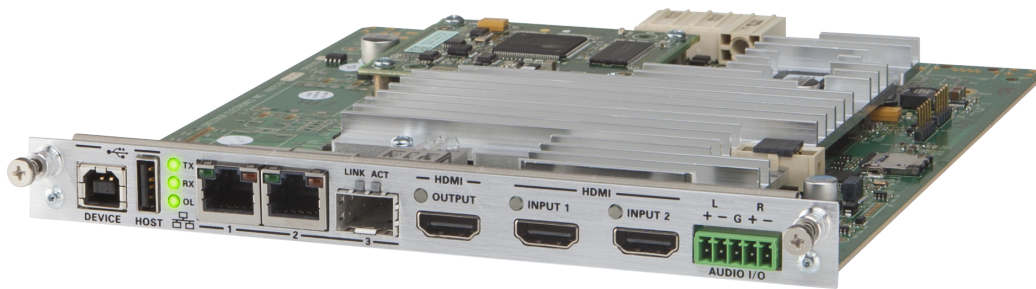
Notes:

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.
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 connects to a PoE PSE port is designed for intrabuilding use only.

# DM-NVX-350C

The DM-NVX-350C is an AV-over-IP encoder/decoder card that occupies one slot of a [DMF-CI-8](#) card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-350C includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, High Dynamic Range support (HDR10), and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder
- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator

- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. 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. Depending on the operating mode, the DM-NVX-350C can encode or 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.

## Encoder or Decoder Functionality

The DM-NVX-350C is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-350C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-350C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-350C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

### Autoswitching HDMI® Inputs

The DM-NVX-350C includes two HDMI inputs. Switching between the two inputs can be performed automatically using auto-switching mode, programmatically via a control system, manually via the DMF-CI-8 front panel, or through a computer using a web browser.

### HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-350C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-350C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

### 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 eight wide by eight high.

### Dynamic Text Overlay

The DM-NVX-350C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

### Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

### Background Image for On-Screen Display

When the DM-NVX-350C is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

### Test Pattern Generator

When the DM-NVX-350C is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used

as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</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. In decoder mode, the DM-NVX-350C can receive both multichannel and 2-channel downmix signals from an encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-350C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-350C device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-351C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>8</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also



supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>9</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-350C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-350C can control the display and source devices, 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-350C 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 Appliance

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.

## XiO Cloud® Service Support

The DM-NVX-350C is compatible with the 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. Refer to the [XiO Cloud service feature page](#) for more information.

## High-Density, Card-Based Solution

The DM-NVX-350C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-350C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-350C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

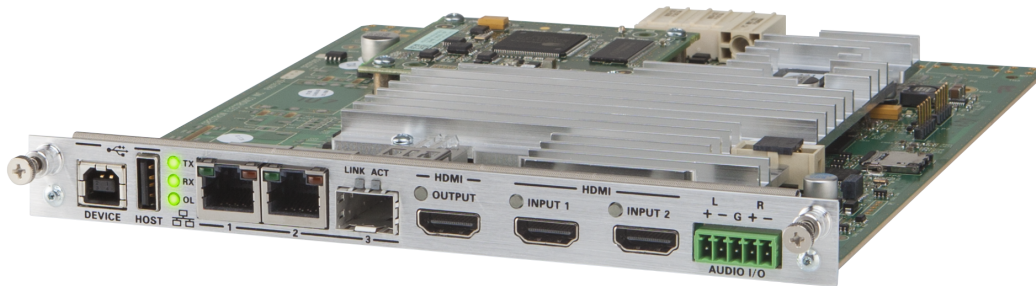


3. 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps may be used. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
4. When the DM-NVX-350C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-350C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351, DM-NVX-351C, DM-NVX-363, or DM-NVX-363C.
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The DM-NVX-350C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
9. The DM-NVX-350C is not compatible with the USB HID signal extender technology found in other Crestron DM products.

# DM-NVX-351C

The DM-NVX-351C is an AV-over-IP encoder/decoder card that occupies one slot of a [DMF-CI-8](#) card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-351C includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, surround sound to stereo downmixing, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional on-board scaling, HDR (High Dynamic Range) support, and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder
- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator

- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support with downmixing
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-351C can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-351C is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-351C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-351C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-351C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

### Autoswitching HDMI® Inputs

The DM-NVX-351C includes two HDMI inputs. Switching between the two inputs can be performed automatically using the built-in autoswitching mode, programmatically via a control system, manually via the DMF-CI-8 front panel, or through a computer using a web browser.

### HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-351C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-351C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

### 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 eight wide by eight high.

### Dynamic Text Overlay

The DM-NVX-351C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

### Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

### Background Image for On-Screen Display

When the DM-NVX-351C is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

### Test Pattern Generator

When the DM-NVX-351C is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used

as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

### 7.1 Surround Sound Audio with Downmixing

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<sup>7</sup>. The DM-NVX-351C can decode the incoming multichannel surround sound signal, whether from the network or an HDMI input, and downmix that signal to stereo. The stereo downmix signal is automatically routed to the built-in analog output<sup>6</sup>, while the HDMI output can be configured to output either stereo or multichannel signals. As an encoder, the DM-NVX-351C distributes both stereo and multichannel signals simultaneously over the network, allowing either signal to be selected at any decoder on the network.

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>8</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-351C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-351C device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-351C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>9</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also

supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>10</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-351C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-351C can control the display and source devices, 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-351C 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 Appliance

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.

## XiO Cloud® Service Support

The DM-NVX-351C is compatible with the 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. Refer to the [XiO Cloud service feature page](#) for more information.

## High-Density, Card-Based Solution

The DM-NVX-351C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-351C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-351C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

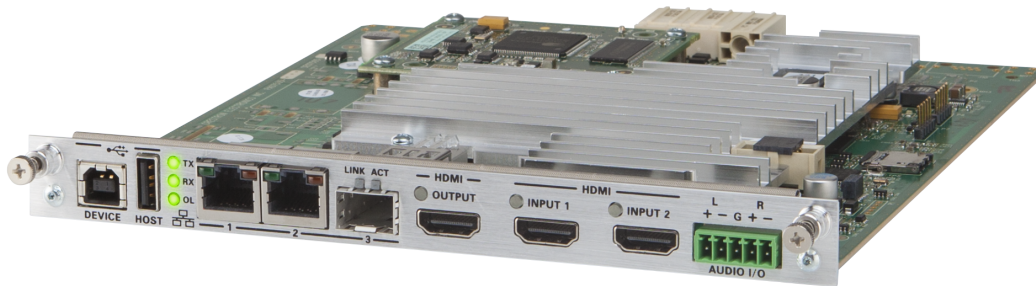
3. 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps may be used. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
4. When the DM-NVX-351C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. The DM-NVX-351C does not downmix Dolby Atmos MAT 2.0 audio.
8. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. The DM-NVX-351C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. The DM-NVX-351C is not compatible with the USB HID signal extender technology found in other Crestron DM products.



# DM-NVX-352C

The DM-NVX-352C is an AV over IP encoder/decoder card that occupies one slot of a DMF-CI-8 card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-352C includes features such as secure web-based control and management, auto-switching HDMI® inputs, a scaling HDMI output, video wall processing, an analog audio input or output, native Dante® or AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, High Dynamic Range support (HDR10), and HDCP 2.2 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 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
- Configurable as an encoder or decoder
- Two auto-switching HDMI® inputs
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator

- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- Dante or AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. 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. Depending on the operating mode, the DM-NVX-352C can encode or 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.

## Encoder or Decoder Functionality

The DM-NVX-352C is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-352C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-352C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-352C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

### Autoswitching HDMI® Inputs

The DM-NVX-352C includes two HDMI inputs. Switching between the two inputs can be performed automatically using auto-switching mode, programmatically via a control system, manually via the DMF-CI-8 front panel, or through a computer using a web browser.

### HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-352C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-352C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

### 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 eight wide by eight high.

### Dynamic Text Overlay

The DM-NVX-352C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

### Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

### Background Image for On-Screen Display

When the DM-NVX-352C is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

### Test Pattern Generator

When the DM-NVX-352C is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used

as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</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. In decoder mode, the DM-NVX-352C can receive both multichannel and 2-channel downmix signals from an encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.

## Dante® and DM NAX® Audio Embedding or De-embedding

Dante and AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) allows the selected audio source to be transmitted as a 2-channel Dante or AES67 source while another 2-channel Dante or AES67 audio stream is received from a Crestron DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received Dante or AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, the received Dante or AES67 audio stream can be combined with the video 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.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-352C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-352C device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-351C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>8</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also

supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>9</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-352C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-352C can control the display and source devices, 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-352C 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 Appliance

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.

## XiO Cloud® Service Support

The DM-NVX-352C is compatible with the 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. Refer to the [XiO Cloud service feature page](#) for more information.

## High-Density, Card-Based Solution

The DM-NVX-352C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-352C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-352C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

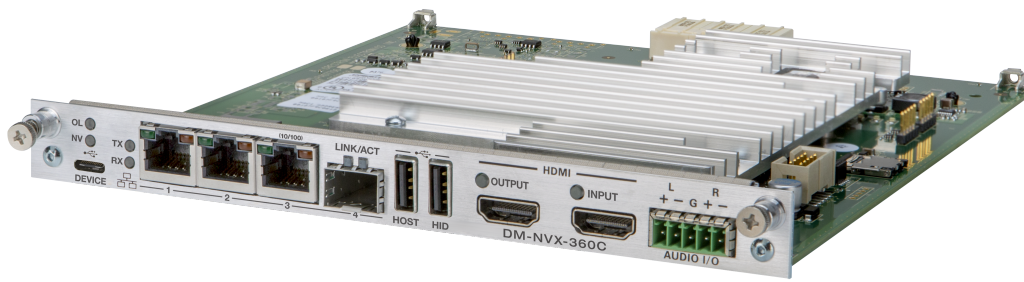
3. 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps may be used. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
4. When the DM-NVX-352C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-352C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351, DM-NVX-351C, DM-NVX-363, or DM-NVX-363C.
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The DM-NVX-352C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
9. The DM-NVX-352C is not compatible with the USB HID signal extender technology found in other Crestron DM products.



# DM-NVX-360C

The DM-NVX-360C is an AV-over-IP encoder/decoder card that occupies one card slot in a [DMF-CI-8](#) card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-360C includes features such as secure web-based control and management, a scaling HDMI® output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI® input
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate



- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-360C can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-360C is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-360C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>1</sup>
- As a decoder, the DM-NVX-360C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>1</sup>

The DM-NVX-360C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

## HDMI® Input

The DM-NVX-360C includes one HDMI input, which provides a convenient way to connect a source device to a DM NVX integrated system.

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-360C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-360C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>1, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-360C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-360C is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-360C is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used

as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

### 7.1 Surround Sound Audio with Downmixing

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. In decoder mode, the DM-NVX-360C can receive both multichannel and 2-channel downmix signals from a DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.<sup>6</sup>

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-360C includes two RJ-45 100BASE-T LAN ports (Ethernet ports 1 and 2), one RJ-45 100BASE-TX port (Ethernet port 3), and one SFP port (Ethernet port 4). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 4 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

An RJ-45 100BASE-TX port is included for connection to a dedicated audio network or for use as a convenience port.

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 100BASE-T Ethernet port of an encoder is connected directly to a 100BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-360C device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the DM-NVX-360C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch

functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>8</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>9</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs. DM NUX, USB-NX2, and USB-EXT DM devices do not support Layer 3.

## Device Control

The DM-NVX-360C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-360C can control the display and source devices, 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-360C 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 Appliance

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.

## High-Density, Card-Based Solution

The DM-NVX-360C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

Notes:

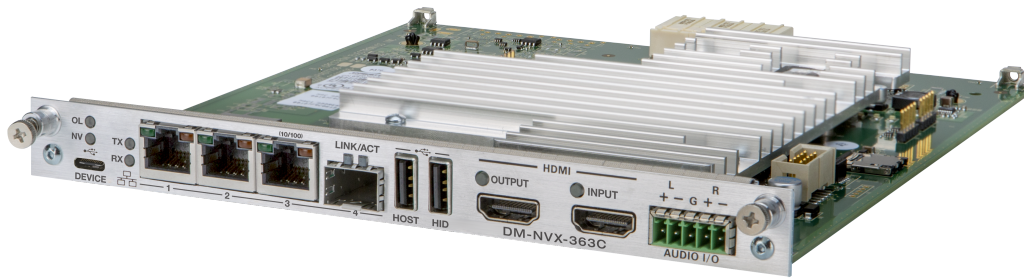
1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-360C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-360C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

3. 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.
4. When the DM-NVX-360C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both. Analog audio output is functional only when the DM-NVX-360C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C.
7. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The DM-NVX-360C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.

# DM-NVX-363C

The DM-NVX-363C is an AV-over-IP encoder/decoder card that occupies one card slot in a [DMF-CI-8](#) card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-363C includes features such as secure web-based control and management, a scaling HDMI® output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, USB 2.0 and KVM integration, and support for copper and fiber Ethernet connectivity.<sup>1, 2</sup>

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 that is economically advantageous and infinitely scalable for any enterprise or campus-wide 4K content distribution application. Professional onboard scaling, HDR (High Dynamic Range) support, and HDCP 2.3 compliance ensure the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 3</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI® input
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate

- Analog audio embedding or de-embedding
- 7.1 surround sound audio with downmixing
- Dante® or AES67 audio embedding and de-embedding
- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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. Depending on the operating mode, the DM-NVX-363C can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-363C is configurable to operate as either a network AV encoder or decoder:



- As an encoder, the DM-NVX-363C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>3</sup>
- As a decoder, the DM-NVX-363C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>3</sup>

The DM-NVX-363C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

## HDMI® Input

The DM-NVX-363C includes one HDMI input, which provides a convenient way to connect a source device to a DM NVX integrated system.

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-363C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-363C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>3, 4</sup>

## 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 eight wide by eight high.

## Dynamic Text Overlay

The DM-NVX-363C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

When the DM-NVX-363C is configured as a decoder, an image can be uploaded to the device for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## Test Pattern Generator

When the DM-NVX-363C is configured as an encoder, the built-in test pattern generator can be used during setup to ensure that video streaming is functional. The test pattern generator can also be used

as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>5</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio Embedding or De-embedding

A balanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

### 7.1 Surround Sound Audio with Downmixing

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<sup>6</sup>. The DM-NVX-363C can decode the incoming multichannel surround sound signal from the network or an HDMI input and then downmix that signal to stereo. The stereo downmix signal is automatically routed to the onboard analog output<sup>7</sup>, while the HDMI output can be configured to output either stereo or multichannel signals. As an encoder, the DM-NVX-363C distributes both stereo and multichannel signals simultaneously over the network, allowing either signal to be selected at any decoder on the network.

**NOTE:** The DSP of the DM-NVX-363C is compatible with Dolby Atmos audio using True HD or Dolby Digital Plus audio formats.

## Dante® and DM NAX® Audio Embedding or De-embedding

Dante and AES67 support enables the selected audio source to be transmitted as a 2-channel Dante or AES67 audio stream while another 2-channel Dante or AES67 audio stream is received from a Crestron DSP or other third-party device and combined with the video signal.

In DM NVX encoder mode, the received Dante or AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, the received Dante or AES67 audio stream can be combined with the video and then output via the HDMI output and analog audio output.

**NOTE:** A Dante or AES67 stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>8</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-363C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2), one RJ-45 100BASE-TX port (Ethernet port 3), and one SFP port (Ethernet port 4). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 4 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

An RJ-45 100BASE-TX port is included for connection to a dedicated audio network or for use as a convenience port.

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Network Port Selection

Network port selection enables network traffic to be managed and segregated based on traffic type. Internal VLANs are used to route different traffic types to specific external Ethernet ports, which can then be assigned to the various traffic types. AES67 audio can be separated from the primary video and control network resulting in a dedicated audio network.

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables a DM NVX 4K60 4:4:4 encoder to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video, audio, and USB signals. Rather than being connected to a Gigabit Ethernet network, a 1000BASE-T Ethernet port of an encoder is connected directly to a 1000BASE-T port of a decoder. By default, point-to-point mode is enabled and can be disabled if desired.

When point-to-point mode is enabled and a direct connection between an encoder and decoder is automatically detected, no additional configuration is required for the encoder or decoder to operate in point-to-point mode; however, the operating mode of a DM-NVX-363C device must be configured correctly. If the device is to function as an encoder, the operating mode of the device must be configured as an encoder. If the device is to function as a decoder, the operating mode must be configured as a decoder. In addition, a control system is required for CEC (Consumer Electronics Control), IR, and RS-232 control.

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **HOST** and **DEVICE** ports are provided on the

DM-NVX-363C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>9</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **HOST** port of up to seven remote DM NVX endpoints to the **DEVICE** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB over Ethernet Network extenders, which consist of the DM-NUX-L2, DM-NUX-R2, DM-NUX-L2-1G, DM-NUX-R2-1G, and legacy models (USB-NX2-LOCAL-1G, USB-NX2-REMOTE-1G, USB-EXT-DM-LOCAL, and USB-EXT-DM-REMOTE). The USB extenders can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX endpoints and USB extenders under the management of a control system.<sup>10</sup>

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs. DM NUX, USB-NX2, and USB-EXT DM devices do not support Layer 3.

## Device Control

The DM-NVX-363C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-363C can control the display and source devices, 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-363C 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 Appliance

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.

## High-Density, Card-Based Solution

The DM-NVX-363C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

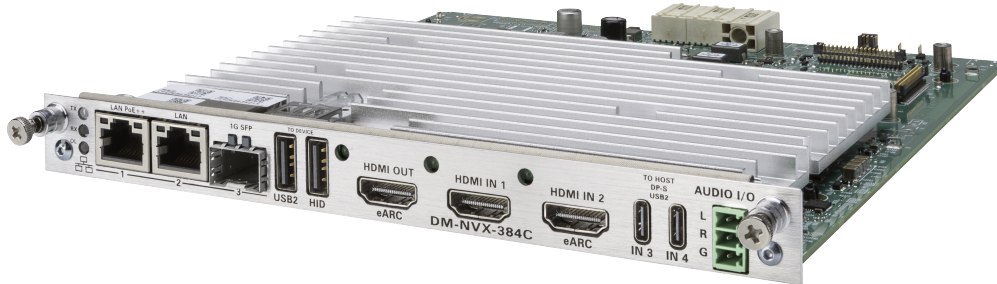
Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-363C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-363C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

3. 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.
4. When the DM-NVX-363C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The DM-NVX-363C does not down-mix Dolby Atmos MAT 2.0 audio.
7. The analog audio port can function as an input or output, not both.
8. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. The DM-NVX-363C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. In encoder mode, the stream type of the DM-NVX-363C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-363C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-363C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363C decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-363C decoder.

# DM-NVX-384C

The DM-NVX-384C is a compact DM NVX® AV-over-IP encoder/decoder card that occupies one card slot in a [DMF-CI-8](#) card chassis. The card is designed to function as either a transmitter or receiver in a high-density rack-mount installation. Capable of handling a network AV installation of any size, the DM-NVX-384C includes features such as secure web-based control and management, a scaling HDMI output, video wall processing, an analog audio input or output, native AES67 transmit and receive capability, surround sound audio, support for copper and fiber-optic Ethernet connectivity, and USB 2.0 and KVM integration.<sup>1, 2</sup>



- Two HDMI® and two USB-C® inputs
- 4K60 4:4:4 video over standard Gigabit Ethernet
- Support for 5K Wide (16:9), Ultra-Wide (21:9), and Super-Wide (32:9) resolutions
- 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 2.3 compliant
- Configurable as an encoder or decoder
- One HDMI output with 4K60 4:4:4 scaler
- Video wall processing
- Dynamic text overlay
- Image preview
- Background image for on-screen display
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio embedding or de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding

- Breakaway audio
- USB 2.0 and KVM signal extension and routing
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- Streamlined management using DM NVX Director® virtual switching appliances
- .AV Framework™ technology support
- XiO Cloud® service support
- Crestron Home® OS support
- Designed for installation into a DMF-CI-8 card chassis

## HDMI® and USB-C® 4x1 Input Switching

The DM-NVX-384C includes two HDMI inputs and two USB-C inputs that comprise a 4x1 input switcher. When used as a decoder mounted behind a typical conference room display device, the HDMI input provides a convenient way to connect to a Crestron [AirMedia®](#) presentation gateway, video-conferencing codec, or small form factor computer. The USB-C inputs allow for a DisplayPort™ Alt Mode video connection to laptops that do not feature an HDMI connection. The USB-C inputs also pass USB 2.0 data back and forth from the connected host PC and other DM NVX or DM NUX endpoints.

Switching between the four inputs can be performed automatically using auto-switching mode, programmatically via a control system, or through the web interface.

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) enables traversing multiple network routers for optimal flexibility.

## Support for 5K Resolutions

The DM-NVX-384C introduces support for 5K video resolutions including 5K Wide (5120×2880), 5K Ultra-Wide 5120 × 2160, and 5K Super-Wide 5120 × 1440, expanding the DM NVX product family's compatibility with the latest generation of computers, monitors, and displays.

## Pixel Perfect Processing Technology

A DM NVX system incorporates Pixel Perfect Processing technology, which provides flawless video transport in all applications. Depending on the operating mode, the DM-NVX-384C can encode or 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 Gbps network at resolutions 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.

## Encoder or Decoder Functionality

The DM-NVX-384C is configurable to operate as either a network AV encoder or decoder:

- As an encoder, the DM-NVX-384C allows the HDMI signal of a laptop computer, camera, or other media source to be transmitted over the network to one or many decoders.<sup>1</sup>
- As a decoder, the DM-NVX-384C receives the signal from a DM NVX encoder and feeds it to a display device via the HDMI output. The decoder can quickly and easily switch between multiple encoders on the network alongside locally connected HDMI sources.<sup>1</sup>

The DM-NVX-384C provides a versatile, cost-effective solution for applications that require encoder and decoder operating modes in a single device. The operating mode can be reconfigured dynamically in less than 1 minute via a control system or web browser or via the DMF-CI-8 front panel.

## HDMI Output with 4K60 4:4:4 Scaler

When the DM-NVX-384C is configured as a decoder, the HDMI output feeds the decoded signal to the HDMI input of a local display device, switcher, or other equipment. 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. When the DM-NVX-384C is configured as an encoder, the HDMI output can be used to feed a local display, confidence monitor, or audio system.<sup>1, 4</sup>

## 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 eight wide by eight high.

## Text Overlay

The DM-NVX-384C enables the display of dynamic text, providing a means to label the video source or to display special instructions, schedules, announcements, alerts, and other messaging.

## Analog Audio Embedding or De-embedding

An unbalanced stereo analog audio port is included, which can be configured as either an input or output. As an input, the port allows a stereo audio source to be connected and combined with the video signal from either HDMI input or the incoming network video stream. As an output, the port can provide a stereo line-level signal to feed a local sound system or soundbar. The output volume is adjustable via a control system or web browser.<sup>6</sup>

## 7.1 Surround Sound Audio with Downmixing

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. In decoder mode, the DM-NVX-384C can receive both multichannel and 2-channel downmix signals from a DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.<sup>6</sup>



## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-384C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **TO HOST** and **TO DEVICE** ports are provided on the DM-NVX-384C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>8</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **TO DEVICE** port of up to seven remote DM NVX endpoints to the **TO HOST** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB-over-Ethernet devices (DM-NUX-L2 or DM-NUX-R2, sold separately), which can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX and DM NUX devices under the management of a control system.

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-384C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-384C can control the display and source devices, 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-384C 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 Appliance

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.

## High-Density, Card-Based Solution

The DM-NVX-384C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

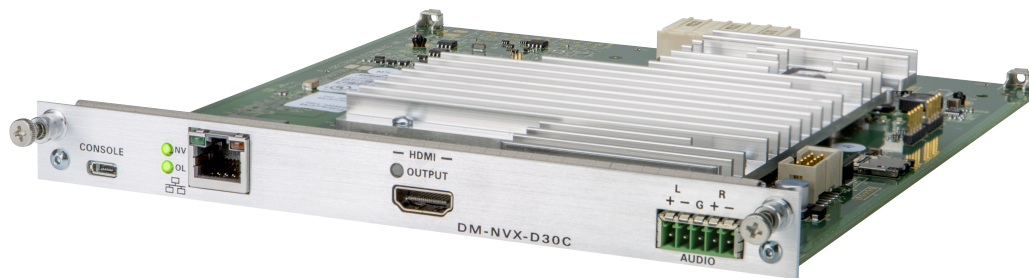
### Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-384C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The DM-NVX-384C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.

# DM-NVX-D30C

The 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 decoder solution for a DM NVX network AV installation of any size.<sup>1</sup>

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 HDR (High Dynamic Range) and HDCP 2.3 compliance ensures the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 2</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Decoder functionality for use with DM NVX® products that can function as encoders
- One HDMI® output
- Image preview
- Background image for on-screen display
- Analog audio de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity
- Automatic point-to-point connectivity
- Device control via CEC

- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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 Gbps 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 of the DM-NVX-D30C does not support video scaling.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface

and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Background Image for On-Screen Display

An image can be uploaded to the DM-NVX-D30C for use as a background image on a display whenever active video content is not being displayed. Supported image file types are .jpeg, .jpg, and .png. The supported maximum resolution of an image is 3840x2160 pixels. Up to 20 image files can be uploaded for a total storage capacity of up to 100 MB.

## 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.<sup>3</sup>

### 7.1 Surround Sound Audio with Downmixing

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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-D30C includes one RJ-45 1000BASE-T Ethernet port.<sup>1</sup> For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-D30C to be connected directly to a DM NVX 4K60 4:4:4 encoder to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the decoder is connected directly to a 1000BASE-T port of an encoder.

By default, point-to-point mode automatically detects whether the DM-NVX-D30C is connected directly to a DM NVX 4K60 4:4:4 encoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E30C and an encoder is detected, the devices operate in point-to-point mode without the need for additional configuration; however, a control system is required for CEC (Consumer Electronics Control).

## CEC Device Control

Under the management of a control system, the DM-NVX-D30C can control a 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 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 Appliance

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.

## High-Density, Card-Based Solution

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

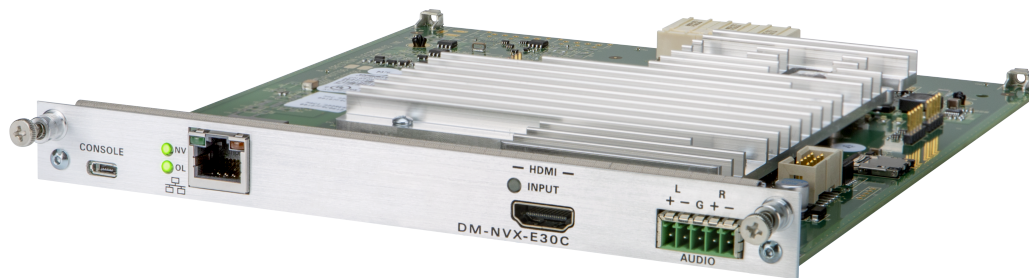
Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-E30C is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. 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.
3. The analog audio output is functional only when the DM-NVX-E30C is receiving a 2-channel stereo input signal.

# DM-NVX-E30C

The 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 secure web-based control and management, an HDMI® input, an analog audio output, AES67 transmit and receive capability, and copper Ethernet connectivity, the DM-NVX-E30C offers an encoder solution for a DM NVX network AV installation of any size.<sup>1</sup>

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 HDR (High Dynamic Range) and HDCP 2.3 compliance ensures the ultimate in picture quality and compatibility for all of today's varied media sources.<sup>1, 2</sup>



- 4K60 4:4:4 video over standard Gigabit Ethernet
- HDR10, HDR10+, and Dolby Vision® 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 2.3 compliant
- Encoder functionality for use with DM NVX® products that can function as decoders
- One HDMI® input
- Image preview
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio de-embedding
- 7.1 surround sound audio support
- AES67 audio embedding and de-embedding
- Copper Ethernet connectivity
- Automatic point-to-point connectivity



- Device control via CEC
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system
- 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
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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-E30C can encode 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 Gbps 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.

## Encoder Functionality

The DM-NVX-E30C is a basic encoder card with one HDMI input 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.<sup>2</sup> Compatible with DM NVX products that can function as decoders, the DM-NVX-E30C can be used in any DM NVX network AV design.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by an input of a DM NVX encoder or displayed by an output of a DM NVX decoder. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.



## Test Pattern Generator

The built-in test pattern generator can be used during setup to ensure that video streaming is functional and can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM NVX encoder can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

The bit rate of a transmitting DM NVX stream can be set to fixed, adaptive, or variable:

- 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.<sup>3</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## 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.<sup>4</sup>

## 7.1 Surround Sound Audio with Downmixing

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 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

**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-E30C includes one RJ-45 1000BASE-T Ethernet port.<sup>1</sup> For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## Automatic Point-to-Point Connectivity

Point-to-point connectivity enables the DM-NVX-E30C to be connected directly to a DM NVX 4K60 4:4:4 decoder to stream video and audio. Rather than being connected to an Ethernet switch, the 1000BASE-T Ethernet port of the encoder is connected directly to a 1000BASE-T port of a decoder.

By default, point-to-point mode automatically detects whether the DM-NVX-E30C is connected directly to a DM NVX 4K60 4:4:4 decoder or to a 1000BASE-T switch. When a direct connection between the DM-NVX-E30C and a decoder is detected, the devices operate in point-to-point mode without the need for additional configuration; however, a control system is required for CEC (Consumer Electronics Control).

## CEC Device Control

Under the management of a control system, the DM-NVX-E30C can control a source device via CEC (Consumer Electronics Control) over the HDMI connection, potentially eliminating the need for dedicated serial cables or IR emitters.

## Web-Based Setup

Setup of the DM-NVX-E30C 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 Appliance

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.

## High-Density, Card-Based Solution

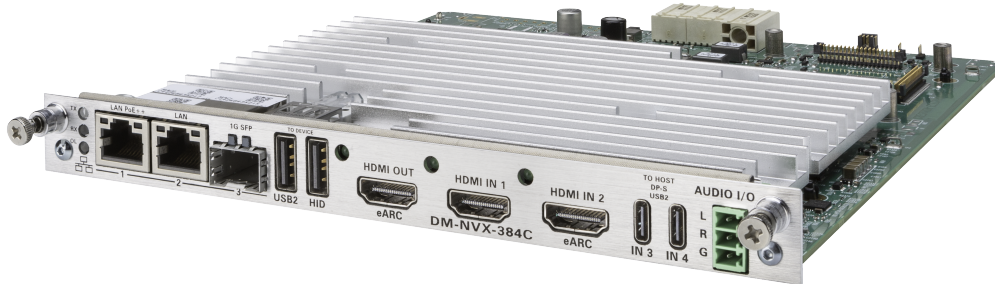
The DM-NVX-E30C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

### Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port on the DM-NVX-E30C is for connection to an Ethernet network or device. The Ethernet port cannot be connected to the DM® port of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. 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.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. The analog audio output is functional only when the DM-NVX-E30C is receiving a 2-channel stereo input signal.

# DM-NVX-E760C

The DM-NVX-E760C is a compact DM NVX® AV-over-IP encoder card that occupies one card slot in a [DMF-CI-8](#) card chassis. The DM-NVX-E760C includes a DM® input that provides interoperability with DM 8G+® output devices and DM Essentials transmitters. Certified using HDBaseT® technology, the DM input is also compatible with third-party HDBaseT products.<sup>1, 2</sup>



- 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 2.3 compliant
- Encoder functionality for use with DM NVX® products that can function as decoders
- DM® input for interoperability with DM 8G+® output devices and DM Essentials transmitters, including DM 8G+ and DM Essentials wall plate transmitters
- HDBaseT® certification
- Image preview
- Test pattern generator
- Fixed, adaptive, or variable bit rate
- Analog audio de-embedding
- 7.1 surround sound audio
- AES67 audio embedding and de-embedding
- Copper and fiber Ethernet connectivity
- Network port selection
- Automatic point-to-point connectivity
- Easy setup via built-in web pages
- Compatibility with a Crestron® 3-Series® or later control system

- Streamlined management using DM NVX Director® virtual switching appliances
- .AV Framework™ technology support
- XiO Cloud® service support
- Crestron Home® OS support
- Designed for installation into a DMF-CI-8 card chassis

## 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 usage of a mouse are fluid and natural.

A DM NVX system also provides stability and reliability. Line-synchronized outputs ensure perfect synchronization of content across multiple displays for applications such as digital signage and video walls. Variable Multicast Time-to-live (TTL) 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-E760C can encode 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 Gbps 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.

## Encoder Functionality

The DM-NVX-E760C is an encoder that is compatible with DM NVX products that can function as decoders. The DM-NVX-E760C enables AV signals from the DM input to be transmitted over the network to one or many decoders. Encoder functionality of the DM-NVX-E760C can be used in any DM NVX network AV design.

## Interoperability with DM 8G+ Output Devices and DM Essentials Transmitters

The DM input of the DM-NVX-E760C can be connected to the DM 8G+ output of a DM switcher, transmitter, or other DM device. Supported DM 8G+ output devices are the DMC-4KZ-CO-HD and DMB-4K-O-C of DM switchers, the DM-TX-4KZ-100-C-1G transmitter, and the DMPS3-4K-350-C and DMPS3-4K-250-C presentation systems.

The DM input can also be connected to the DM Essentials port of a DM Essentials transmitter.

## HDBaseT Certification

Crestron DM 8G+ technology of the DM input is designed using [HDBaseT Alliance](#) specifications, ensuring interoperability with other HDBaseT certified products. The DM input of the DM-NVX-E760C can be connected directly to an HDBaseT compliant source. The DM-NVX-E760C provides the capability to bridge an HDBaseT system with AV-over-IP, resulting in a hybrid system design and a smooth migration path for existing DM or HDBaseT solutions. Investment protection is achieved for applications

that require integration of AV-over-IP with existing HDBaseT systems or expansion of an existing room system for broader distribution.

## Image Preview

An image preview feature provides still images (thumbnails) that show the current video being received by the DM input of the DM-NVX-E760C. Still images are shown at 1 frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or other supported interface.

## Test Pattern Generator

The built-in test pattern generator can be used during setup to ensure that video streaming is functional and can also be used as a tool for the adjustment, calibration, and alignment of displays, projectors, and video walls. The DM-NVX-E760C can send the test pattern to any routed DM NVX decoder.

## Fixed, Adaptive, or Variable Bit Rate

In DM NVX encoder mode, the bit rate of a stream can be set to fixed, adaptive, or variable:

- 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.<sup>3</sup>
- 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@60 Hz (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.
- Variable bit rate (VBR) enables the encoder to automatically vary the bit rate based on the content and input resolution of the stream. The bit rate can vary from less than 150 Mbps to a maximum of 750 Mbps. A variable bit rate results in the use of less bandwidth to produce the same image quality as a user-specified fixed bit rate or an adaptive bit rate.

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

## Analog Audio De-embedding

The analog audio output provides a balanced or unbalanced stereo line level signal to feed a local sound system or sound bar. The output volume is adjustable using the web interface or a control system.<sup>4</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. In decoder mode, the DM-NVX-384C can receive both multichannel and 2-channel downmix signals from a DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C encoder, allowing either signal to be selected at the HDMI output while the 2-channel signal is automatically routed to the analog output.<sup>6</sup>

## AES67 and DM NAX® Audio Embedding or De-embedding

AES67 support (via native support for Crestron DM NAX® Audio-over-IP technology) 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 DM NAX device or other AES67 capable device and combined with the video signal.

In DM NVX encoder mode, the received AES67 audio stream can be output via the local HDMI output, primary AV stream, and analog audio output. In DM NVX decoder mode, 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 audio stream that is received by a DM NVX endpoint cannot be transmitted from that endpoint.

## Breakaway Audio

A DM NVX decoder can select and combine separate video and audio signals from two different inputs or even two different encoders. Combining signals from two separate encoders is limited to 2-channel stereo audio.<sup>7</sup>

## Copper and Fiber Ethernet Connectivity

The DM-NVX-384C includes two RJ-45 1000BASE-T LAN ports (Ethernet ports 1 and 2) and one SFP port (Ethernet port 3). The SFP port enables connection to a fiber-optic network with the use of the appropriate Crestron SFP-1G Series transceiver module (sold separately). A selection of modules is offered to accommodate various multimode and single-mode fiber types.<sup>2</sup>

Ethernet port 1, 2, or 3 can be used to transport video over a Gigabit Ethernet network. Ports 1 and 2 can also be used to provide network connections for an [AirMedia](#) gateway, display device, or other local device. In addition, the ports can be used to daisy-chain multiple endpoints feeding a single-source video wall or individual displays that show the same video image.<sup>1</sup>

A DM NVX system can be deployed on an existing corporate or campus network or on a dedicated network. For information about network requirements and guidelines, refer to [AV-over-IP Network Design on page 628](#).

## USB 2.0 and KVM Integration

DM NVX technology supports the extension of USB signals, which can be switched and routed alongside the AV signal or separately via a control system. USB 2.0 **TO HOST** and **TO DEVICE** ports are provided on the DM-NVX-384C, allowing a USB mouse, keyboard, or other peripheral device to be connected to a remote endpoint and routed to a computer or other host at the local endpoint. In addition to KVM switch functionality, various types of USB peripherals are supported, including whiteboards, touch screens, game controllers, cameras, mobile devices, headsets, and flash drives.<sup>8</sup>

USB 2.0 data transport can be configured for Layer 2 or Layer 3. Layer 2 supports USB signal extension in point-to-point and multipoint applications. USB signals can be routed from the **TO DEVICE** port of up to seven remote DM NVX endpoints to the **TO HOST** port of a single local DM NVX endpoint. Layer 2 also supports Crestron USB-over-Ethernet devices (DM-NUX-L2 or DM-NUX-R2, sold separately), which can be used in locations that do not include DM NVX endpoints. USB signals can be routed between DM NVX and DM NUX devices under the management of a control system.

USB 2.0 Layer 3 data transport supports USB signal extension in DM NVX point-to-point applications across VLANs.

## Device Control

The DM-NVX-384C provides a gateway for controlling devices via CEC over the HDMI connections. Under the management of a control system, the DM-NVX-384C can control the display and source devices, 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-384C 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 Appliance

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.

## High-Density, Card-Based Solution

The DM-NVX-384C is designed for installation into a DMF-CI-8 card chassis, providing a scalable high-density solution for applications requiring multiple encoders and decoders in one equipment rack.

### Notes:

1. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron DigitalMedia™ devices.  
A nonblocking network is required for DM NVX devices.
2. Use of the SFP port requires the purchase of a Crestron SFP-1G Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
3. 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.
4. When the DM-NVX-384C is in encoder mode, the HDMI output resolution is matched to the resolution of the encoded source.
5. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
6. The analog audio port can function as an input or output, not both
7. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The DM-NVX-384C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.

# Specifications

Refer to the following sections for the specifications of these DM NVX AV-over-IP devices:

- Room Box Models
  - [DM-NVX-350 Specifications on page 141](#)
  - [DM-NVX-351 Specifications on page 148](#)
  - [DM-NVX-352 Specifications on page 155](#)
  - [DM-NVX-360 Specifications on page 162](#)
  - [DM-NVX-363 Specifications on page 169](#)
  - [DM-NVX-384 Specifications on page 176](#)
  - [DM-NVX-D10 Specifications on page 183](#)
  - [DM-NVX-D20 Specifications on page 187](#)
  - [DM-NVX-D200 Specifications on page 191](#)
  - [DM-NVX-D30 Specifications on page 195](#)
  - [DM-NVX-E10 Specifications on page 200](#)
  - [DM-NVX-E20 Specifications on page 204](#)
  - [DM-NVX-E30 Specifications on page 208](#)
  - [DM-NVX-E760 Specifications on page 213](#)
- Wall Plate Models
  - [DM-NVX-E20-2G Specifications on page 218](#)
- Card-Based Models
  - [DM-NVX-350C Specifications on page 223](#)
  - [DM-NVX-351C Specifications on page 227](#)
  - [DM-NVX-352C Specifications on page 231](#)
  - [DM-NVX-360C Specifications on page 235](#)
  - [DM-NVX-363C Specifications on page 240](#)
  - [DM-NVX-384C Specifications on page 245](#)
  - [DM-NVX-D30C Specifications on page 250](#)
  - [DM-NVX-E30C Specifications on page 253](#)
  - [DM-NVX-E760C Specifications on page 257](#)



# DM-NVX-350 Specifications

Product specifications for the DM-NVX-350 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto-switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

#### NOTES:

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>6</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; USB 2.0 computer console (for setup)
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console (for setup)
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.2, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	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

---

<b>USB DEVICE</b>	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>9</sup> PoE++ or UPOE PD (powered device) port; IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant <sup>10</sup>
<b>Ethernet 2</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>9</sup>
<b>Ethernet 3</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>11</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>HDMI INPUT 1-2</b>	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced
<b>CONSOLE, SERIAL</b>	(1) 8-pin RJ-45 connector, female; RS-232 computer console port (for setup)

<b>CONSOLE, USB</b>	(1) USB Type B connector, female; USB 2.0 computer console port (for setup)
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 2.0A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2420RU</a> power pack included
<b>G</b>	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power supplied via PoE++, UPOE, or the included power pack; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<b>RESET</b>	(1) Recessed push button, reboots the device
<b>INPUT SEL</b>	(1) Push button, enables manual input selection; (2) Bicolor green/amber LEDs, indicate the current active input and signal presence at each corresponding input

## Power

---

<b>Power Pack (Included)</b>	Input: 1.3 A maximum @ 100-240VAC, 50/60 Hz; Output: 2 A @ 24VDC; Model: <a href="#">PW-2420RU</a>
<b>PoE++ or UPOE</b>	IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant; Compatible with IEEE 802.3bt compliant Ethernet switch or third-party compliant PSE

**Power Consumption** 35 W typical

## Environmental

---

**Temperature** 32° to 104°F (0° to 40°C)  
**Humidity** 10% to 90% RH (noncondensing)  
**Heat Dissipation** 85 BTU/hr  
**Acoustic Noise** 33 dBA typical

## Construction

---

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

## Dimensions

---

**Height** 8.61 in. (219 mm)  
**Width** 9.27 in. (236 mm)  
**Depth** 1.50 in. (39 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

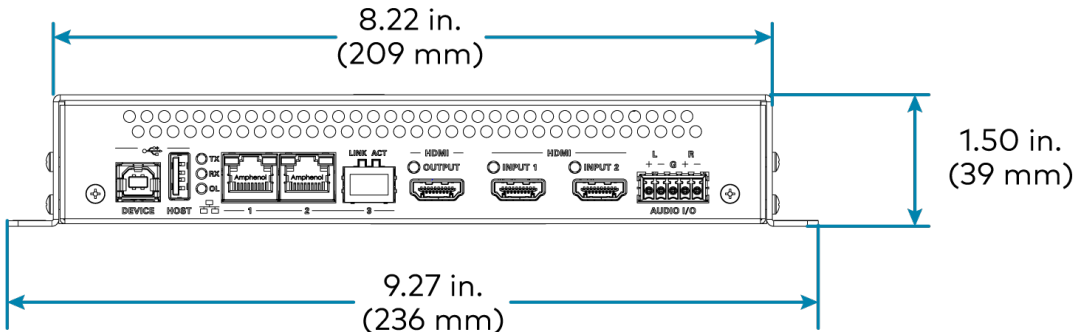
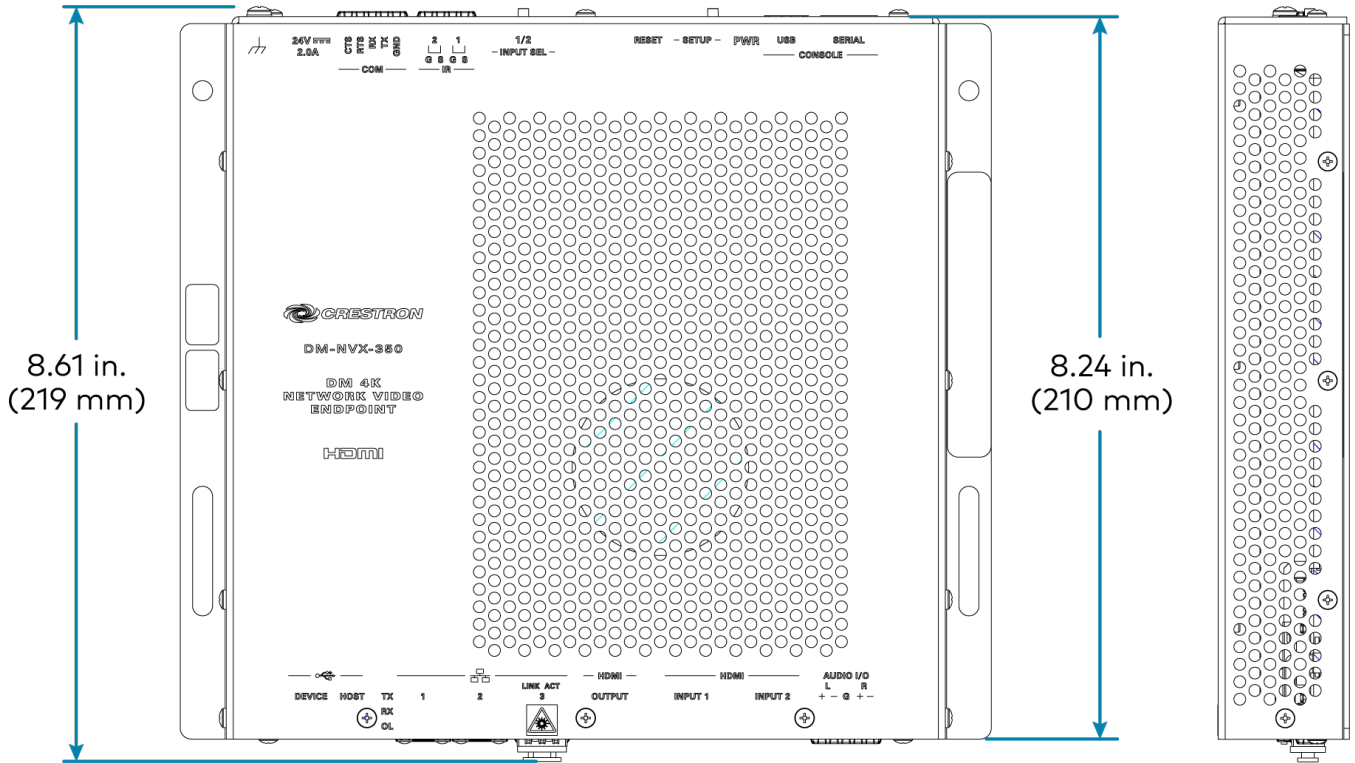
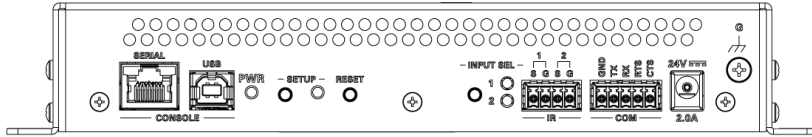
FCC Part 15 Class B, IC Class B, CE, UL® Listed for US and Canada

### Notes:

1. In encoder mode, the stream type of the DM-NVX-350 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-350 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-350 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-350 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.
4. 3D formats are not supported.
5. 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.
6. The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-350 is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351 or DM-NVX-351C.
7. The DM-NVX-350 does not down-mix Dolby Atmos MAT 2.0 audio.

8. The DM-NVX-350 can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
9. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-350 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
  
A nonblocking network is required for DM NVX devices.
10. Refer to the "Power" specifications section for approved powering options.
11. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-350 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# Dimension Drawings



# DM-NVX-351 Specifications

Product specifications for the DM-NVX-351 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto-switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

**Audio**

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI (multichannel pass-through or 2-channel downmix), analog stereo (2-channel downmix) <sup>6</sup>
<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 <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB

Analog Output Volume Adjustment	-80 to +20 dB
Audio Delay	0 to 1200 ms

## 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 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
USB	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; 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 (0-5V) up to 19.2k baud (via control system)
HDMI	HDCP 2.2, EDID, CEC
DM NVX AV-over-IP (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

---

USB DEVICE	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
USB HOST	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
Ethernet 1	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>9</sup> PoE++ or UPOE PD (powered device) port; IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant <sup>10</sup>
Ethernet 2	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>9</sup>
Ethernet 3	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>11</sup>
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
HDMI INPUT 1-2	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )

<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced
<b>CONSOLE, SERIAL</b>	(1) 8-pin RJ-45 connector, female; RS-232 computer console port (for setup)
<b>CONSOLE, USB</b>	(1) USB Type B connector, female; USB 2.0 computer console port (for setup)
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 2.0A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2420RU</a> power pack included
<b>G</b>	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power supplied via PoE++, UPOE, or the included power pack; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<b>RESET</b>	(1) Recessed push button, reboots the device
<b>INPUT SEL</b>	(1) Push button, enables manual input selection; (2) Bicolor green/amber LEDs, indicate the current active input and signal presence at each corresponding input

## Power

---

<b>Power Pack (Included)</b>	Input: 1.3 A maximum @ 100-240VAC, 50/60 Hz; Output: 2 A @ 24VDC; Model: <a href="#">PW-2420RU</a>
<b>PoE++ or UPOE</b>	IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant; Compatible with IEEE 802.3bt compliant Ethernet switch or third-party compliant PSE
<b>Power Consumption</b>	35 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 90% RH (noncondensing)
<b>Heat Dissipation</b>	85 BTU/hr
<b>Acoustic Noise</b>	33 dBA typical

## Construction

---

<b>Chassis</b>	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	8.61 in. (219 mm)
<b>Width</b>	9.27 in. (236 mm)
<b>Depth</b>	1.50 in. (39 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

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

Notes:

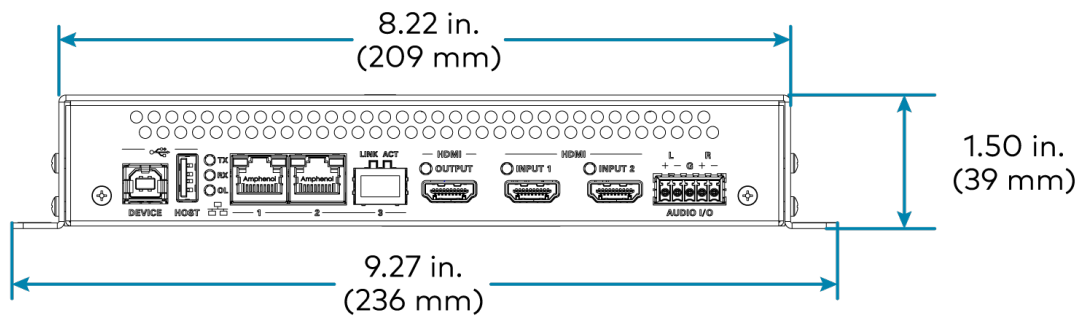
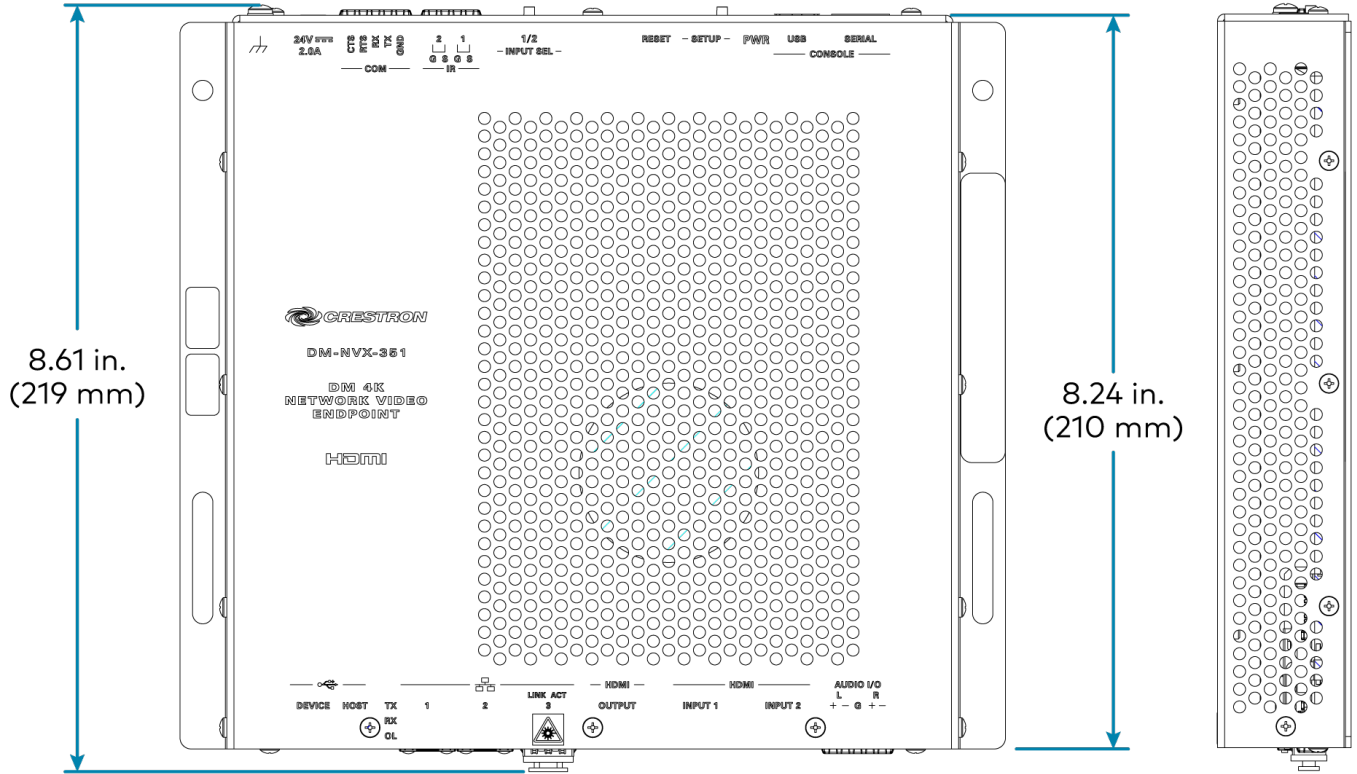
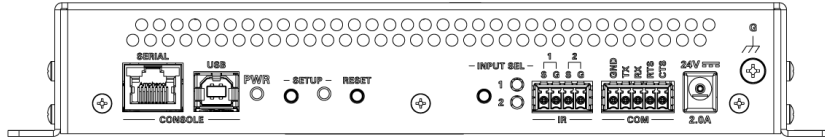
1. In encoder mode, the stream type of the DM-NVX-351 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-351 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-351 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-351 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.

4. 3D formats are not supported.
5. 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.
6. The analog audio port can function as an input or output, not both.
7. The DM-NVX-351 does not down-mix Dolby Atmos MAT 2.0 audio.
8. The DM-NVX-351 can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
9. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-351 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.

A nonblocking network is required for DM NVX devices.

10. Refer to the "Power" specifications section for approved powering options.
11. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-351 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# Dimension Drawings



# DM-NVX-352 Specifications

Product specifications for the DM-NVX-352 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto- switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

#### NOTES:

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>6</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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 $\pm 0.5$ dB; S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted; THD+N: <0.005% @ 1 kHz; Stereo Separation: >90 dB
<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, 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; USB 2.0 computer console (for setup)
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); computer console (for setup)
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.2, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	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

---

<b>USB DEVICE</b>	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>9</sup> PoE++ or UPOE PD (powered device) port; IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant <sup>10</sup>
<b>Ethernet 2</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>11</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>HDMI INPUT 1-2</b>	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4Vrms balanced, 2Vrms unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, SERIAL</b>	(1) 8-pin RJ-45 connector, female; RS-232 computer console port (for setup)
<b>CONSOLE, USB</b>	(1) USB Type B connector, female; USB 2.0 computer console port (for setup)

<b>IR1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 2.0A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2420RU</a> power pack included
<b>G</b>	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet 1</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 2 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 2 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power supplied via PoE++, UPOE, or the included power pack; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<b>RESET</b>	(1) Recessed push button, reboots the device
<b>INPUT SEL</b>	(1) Push button, enables manual input selection; (2) Bicolor green/amber LEDs, indicate the current active input and signal presence at each corresponding input

## Power

---

<b>Power Pack (Included)</b>	Input: 1.3 A maximum @ 100-240VAC, 50/60 Hz; Output: 2 A @ 24VDC; Model: <a href="#">PW-2420RU</a>
<b>PoE++ or UPOE</b>	IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant; Compatible with IEEE 802.3bt compliant Ethernet switch or third-party compliant PSE
<b>Power Consumption</b>	35 W typical

## Environmental

---

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)
Heat Dissipation	85 BTU/hr
Acoustic Noise	33 dBA typical

## Construction

---

Chassis	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
Mounting	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

Height	8.61 in. (219 mm)
Width	9.27 in. (236 mm)
Depth	1.50 in. (39 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

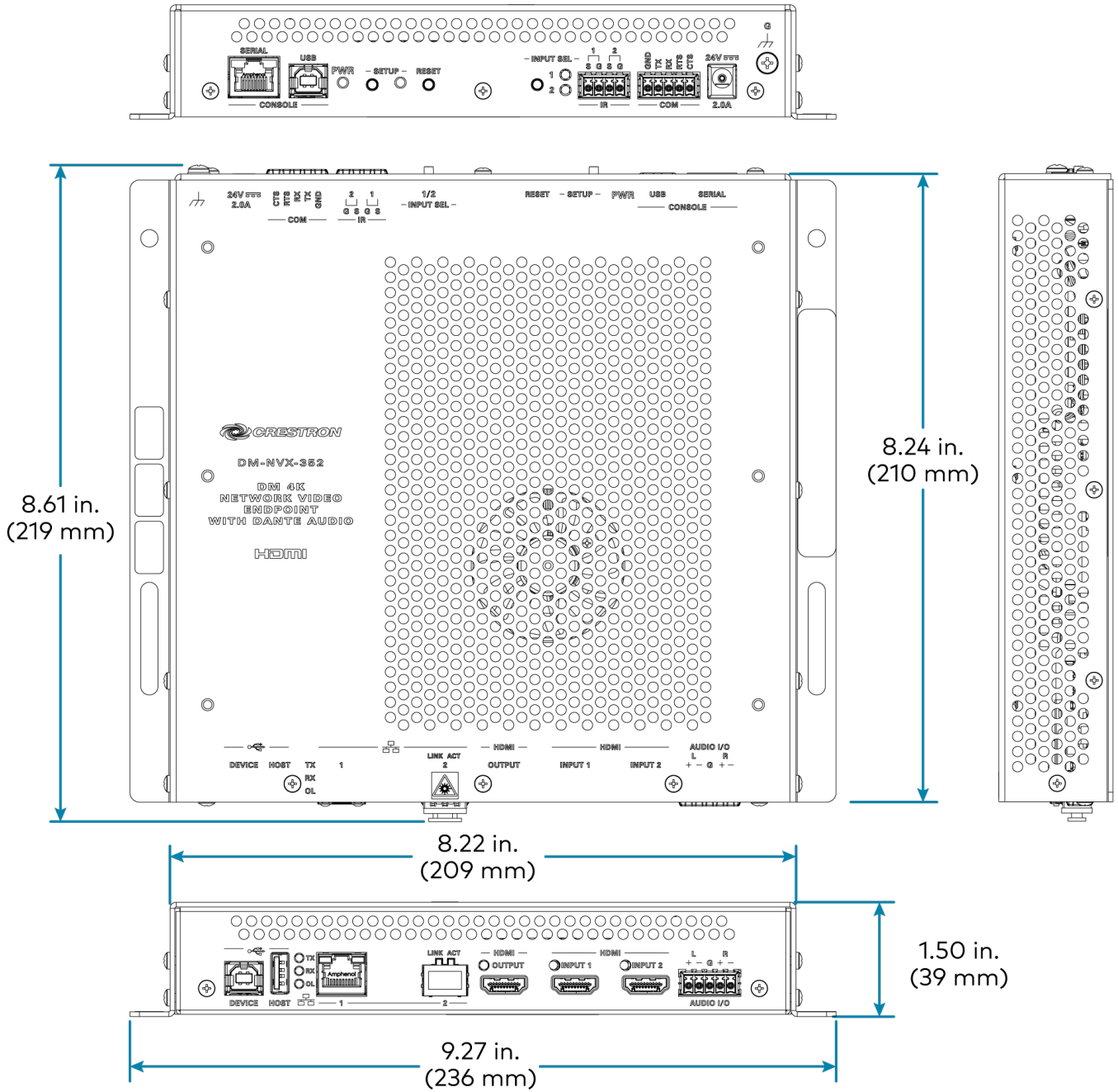
FCC Part 15 Class B, IC Class B, CE, UL® Listed for US and Canada

### Notes:

1. In encoder mode, the stream type of the DM-NVX-352 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-352 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-352 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-352 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.
4. 3D formats are not supported.
5. 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.
6. The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-352 is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351 or DM-NVX-351C.
7. The DM-NVX-352 does not down-mix Dolby Atmos MAT 2.0 audio.

8. The DM-NVX-352 can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
9. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-352 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
10. Refer to the "Power" specifications section for approved powering options.
11. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-352 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# Dimension Drawings



# DM-NVX-360 Specifications

Product specifications for the DM-NVX-360 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	2x1 in decoder mode (HDMI 1, Stream), manual or auto-switching, limited audio breakaway <sup>7</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x 8 high
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>8</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , 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>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB
<b>Analog Output Volume Adjustment</b>	-80 to +20 dB

## Communications

---

<b>Ethernet</b>	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 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking via control system
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>USB DEVICE</b>	(1) USB Type-C® connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>9, 10</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>9</sup> Available Power: 500 mA at 5VDC
<b>USB HID</b>	(1) USB Type-A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; Available Power: 500 mA at 5VDC <sup>11</sup>
<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>12</sup> PoE+ PD (powered device) port; IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant <sup>13, 14</sup>
<b>Ethernet 2</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>12</sup>
<b>Ethernet 3 (10/100)</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX Ethernet port
<b>Ethernet 4</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>15</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> )



<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 1.25A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC 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>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<b>RESET</b>	(1) Recessed push button, reboots the device
<b>INPUT SEL</b>	(1) Push button, enables manual input selection; (2) Bicolor green/amber LEDs, indicate the current active input and signal presence at each corresponding input (HDMI and NV)
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3</b>	(2) LEDs; Green indicates Ethernet activity; Amber indicates Ethernet link status
<b>Ethernet 4 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 4 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output

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

## Power

---

<b>PoE+</b>	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>15</sup>
<b>Power Pack (Optional)</b>	Input: 1.5A maximum @ 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: <a href="#">PW-2412WU</a>
<b>Power Consumption</b>	20 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 90% RH (noncondensing)
<b>Heat Dissipation</b>	74 BTU/hr
<b>Acoustic Noise</b>	33 dBA typical

## Construction

---

<b>Chassis</b>	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	8.61 in. (219 mm)
<b>Width</b>	9.27 in. (236 mm)
<b>Depth</b>	1.25 in. (32 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

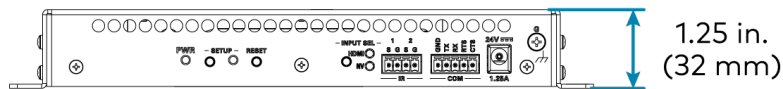
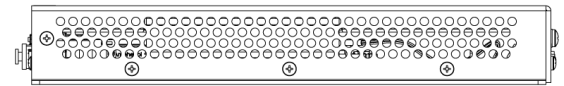
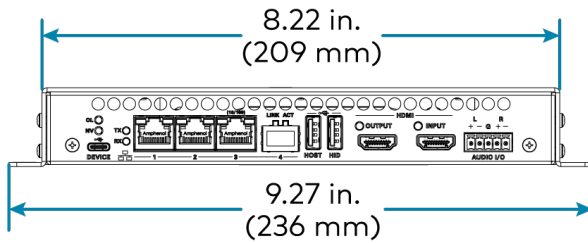
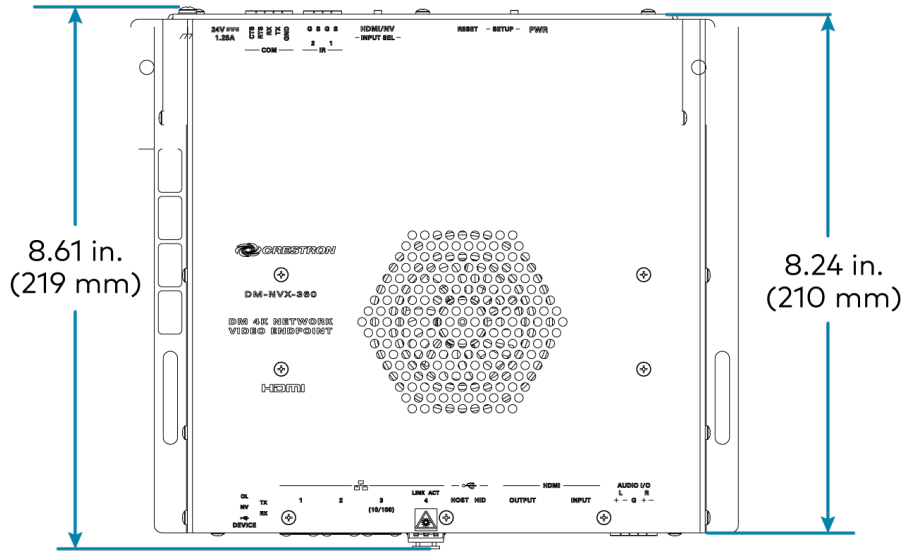
FCC Part 15 Class B, IC Class B, CE, Intertek® Listed for US and Canada

Notes:

1. In encoder mode, the stream type of the DM-NVX-360 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-360 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-360 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-360 decoder.
2. As an encoder, the DM-NVX-360 transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-360 does not transmit audio via the 2-channel AES67 stream when it receives multichannel audio.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.

4. 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.
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.
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The analog audio port can function as an input or output, not both. Analog audio output is functional only when the DM-NVX-360 is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C.
9. The DM-NVX-360 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. USB 2.0 extension and switching over LAN may not work when directly connecting a host PC's USB-C port to a DM-NVX-36X series endpoint's USB-C port. This is a known hardware limitation. Connect the host PC's USB-A port (if available) to the DM NVX endpoint using a USB-A to USB-C cable. A USB OTG USB-C to USB-A adapter may also be used at the host PC's USB-C port, which would be connected to the DM NVX endpoint using a USB-A to USB-C cable.
11. When PoE+ is used to power the DM-NVX-360, a maximum of 500mA is available to power both the USB HOST and USB HID ports. To prevent possible instability issues, it is recommended that the [PW-2412WU](#) power pack (sold separately) be used.
12. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-360 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
13. Refer to the "Power" specifications section for approved powering options.
14. In order for Ethernet port 1 to receive PoE+, the port requires connection to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ PSE port. Cabling that connects to a PoE+ PSE port is designed for intrabuilding use only.
15. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-360 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

## Dimension Drawings



# DM-NVX-363 Specifications

Product specifications for the DM-NVX-363 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	2x1 in decoder mode (HDMI 1, Stream), manual or auto-switching, limited audio breakaway <sup>7</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x 8 high
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI (multichannel pass-through), analog stereo (2-channel downmix) <sup>8</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>9</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB
<b>Analog Output Volume Adjustment</b>	-80 to +20 dB

## Communications

---

<b>Ethernet</b>	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 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking via control system
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>USB DEVICE</b>	(1) USB Type-C® connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>10, 11</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>10</sup> Available Power: 500 mA at 5VDC
<b>USB HID</b>	(1) USB Type-A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; Available Power: 500 mA at 5VDC <sup>12</sup>
<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>14</sup> PoE+ PD (powered device) port; IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant <sup>14, 15</sup>
<b>Ethernet 2</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>13</sup>
<b>Ethernet 3 (10/100)</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX Ethernet port
<b>Ethernet 4</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>16</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> )

<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 1.25A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC 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>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<b>RESET</b>	(1) Recessed push button, reboots the device
<b>INPUT SEL</b>	(1) Push button, enables manual input selection; (2) Bicolor green/amber LEDs, indicate the current active input and signal presence at each corresponding input (HDMI and NV)
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3</b>	(2) LEDs; Green indicates Ethernet activity; Amber indicates Ethernet link status
<b>Ethernet 4 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 4 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output



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

## Power

---

<b>PoE+</b>	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>16</sup>
<b>Power Pack (Optional)</b>	Input: 1.5A maximum @ 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: <a href="#">PW-2412WU</a>
<b>Power Consumption</b>	20 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 90% RH (noncondensing)
<b>Heat Dissipation</b>	74 BTU/hr
<b>Acoustic Noise</b>	33 dBA typical

## Construction

---

<b>Chassis</b>	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	8.61 in. (219 mm)
<b>Width</b>	9.27 in. (236 mm)
<b>Depth</b>	1.25 in. (32 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

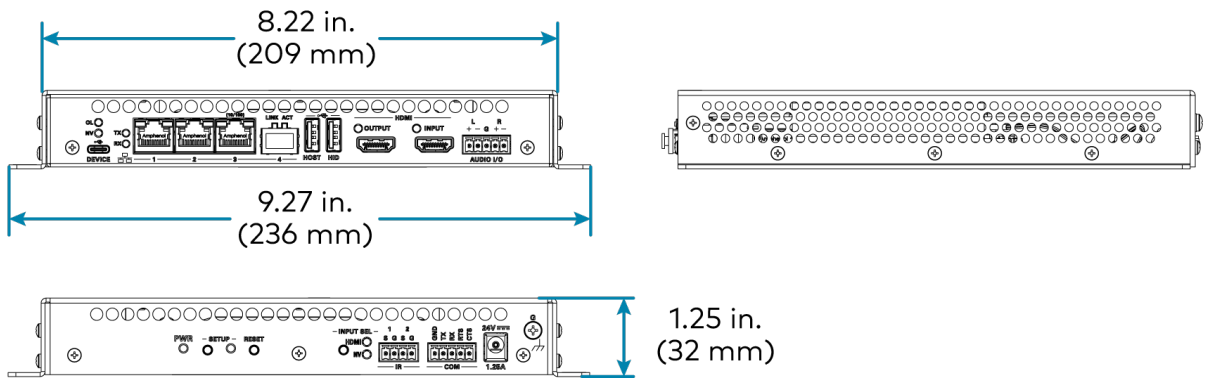
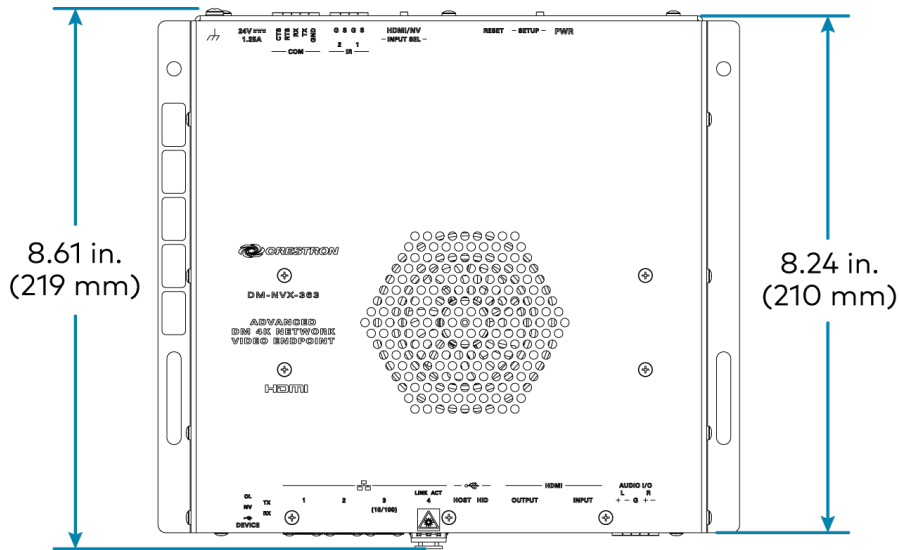
FCC Part 15 Class B, IC Class B, CE, Intertek® Listed for US and Canada

Notes:

1. In encoder mode, the stream type of the DM-NVX-363 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-363 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-363 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-363 decoder.
2. As an encoder, the DM-NVX-363 transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-363 does not transmit audio via the 2-channel AES67 stream when it receives multichannel audio.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.

4. 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.
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.
7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The analog audio port can function as an input or output, not both.
9. The DM-NVX- does not down-mix Dolby Atmos MAT 2.0 audio.
10. The DM-NVX-363 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
11. USB 2.0 extension and switching over LAN may not work when directly connecting a host PC's USB-C port to a DM-NVX-36X series endpoint's USB-C port. This is a known hardware limitation. Connect the host PC's USB-A port (if available) to the DM NVX endpoint using a USB-A to USB-C cable. A USB OTG USB-C to USB-A adapter may also be used at the host PC's USB-C port, which would be connected to the DM NVX endpoint using a USB-A to USB-C cable.
12. When PoE+ is used to power the DM-NVX-363, a maximum of 500mA is available to power both the USB HOST and USB HID ports. To prevent possible instability issues, it is recommended that the [PW-2412WU](#) power pack (sold separately) be used.
13. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-363 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
14. Refer to the "Power" specifications section for approved powering options.
15. In order for Ethernet port 1 to receive PoE+, the port requires connection to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ PSE port. Cabling that connects to a PoE+ PSE port is designed for intrabuilding use only.
16. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-363 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# Dimension Drawings



# DM-NVX-384 Specifications

Product specifications for the DM-NVX-384 are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Video Codec</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 5120x2880 @30 Hz (5K Wide) or 5120x1440 @60 Hz (5K Super-Wide); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> ); DisplayPort over USB-C (DisplayPort Alt Mode) with HDR10, HDR10+, and 4K60 4:4:4 support
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	4x1 in encoder mode (Two HDMI, Two USB-C), manual or auto-switching, breakaway audio, <sup>7</sup> Crestron QuickSwitch HD™ technology; 5x1 in decoder mode (HDMI, Stream), manual or auto-switching, breakaway audio, <sup>7</sup> Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.3
<b>Resolutions</b>	Common resolutions are listed in the following table.

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	5120x2160 5K Ultra-Wide	30 Hz	4:4:4	8 bit
	5120x2160 5K Ultra-Wide*	60 Hz	4:2:0	8 bit
	5120x1440 5K Super-Wide	60 Hz	4:4:4	8 bit
	4096x2160 DCI 4K and 3840x2160 4K UHD	30 Hz	4:4:4	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	12 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit	
	120 Hz	4:4:4	8 bit	
	240 Hz	4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	60 Hz	4:4:4	12 bit

\*5K Ultra-Wide @60 Hz 4:2:0 is supported as an unscaled pass-through resolution only.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), DisplayPort over USB-C (DisplayPort Alt Mode <sup>7</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI (multichannel pass-through), analog stereo (2-channel)
<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>Analog-to-Digital Conversion</b>	24-bit, 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB

Analog Output Volume Adjustment -80 to +20 dB

## Communications

---

Ethernet	Auto-switching, auto-negotiating, autodiscovery, 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 host or device signal extension and routing, Layer 2 or Layer 3
RS-232	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system)
IR/Serial	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud (via control system)
HDMI	HDCP 2.3, EDID, CEC
USB-C (DisplayPort Alt Mode)	HDCP 2.3, EDID, CEC, USB 2.0
DM NVX AV-over-IP (via Ethernet)	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

USB2 TO DEVICE	(1) USB Type-A connector, female; USB 2.0 device port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>9</sup> Available Power: 500mA at 5 VDC <sup>10, 11</sup>
HID TO DEVICE	(1) USB Type-A connector, female; USB 2.0 host port; USB signal extender port for connection to a USB HID compliant mouse, keyboard, or other USB HID compliant device; <sup>9</sup> Available Power: 500 mA at 5VDC <sup>11</sup>
Ethernet 1	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>12</sup> PoE++ PD (powered device) port, IEEE 802.3bt Type 3 Class 5 (60 W) compliant <sup>11</sup>
Ethernet 2	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>12</sup>
Ethernet 3	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>13</sup>
HDMI OUT (eARC)	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>NOTE:</b> eARC connectivity will be enabled in a future firmware update.	
HDMI IN 1	(1) HDMI Type-A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> )

HDMI IN 2 (eARC)	(1) HDMI Type-A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> );
<p><b>NOTE:</b> eARC connectivity will be enabled in a future firmware update.</p>	
TO HOST DP-S USB2 (IN 3-4)	(2) USB Type-C® connectors, female; USB 2.0 host ports; USB signal extender ports for connection to a computer or other USB 2.0 host; DisplayPort single stream video inputs <sup>7</sup>
AUDIO I/O	(1) 3-pin 3.5 mm detachable terminal block; Unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 kΩ; Maximum Input Level: 2Vrms; Output Impedance: 100 Ω; Maximum Output Level: 2Vrms
IR 1-2	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
24VDC 1.5A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2420RU</a> power pack included
G	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

PWR	(1) Bicolor green/amber LED; Indicates operating power supplied via PoE++, UPOE, or the included power pack; Amber indicates device is booting; Green indicates device is operational
SETUP	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
RESET	(1) Recessed push button, reboots the device
OL	(1) Green LED, indicates an online connection to a control system via Ethernet
TX	(1) Green LED, indicates unit is in encoder (transmitter) mode
RX	(1) Green LED, indicates unit is in decoder (receiver) mode
Ethernet 1-3	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
HDMI OUT	(1) Green LED, indicates video signal transmission at the HDMI output
HDMI IN 1-2	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input

## Power

---

PoE++	EEE 802.3bt Type 3 Class 5 (60 W) compliant; Compatible with PoE++ compliant Ethernet switch or third-party IEEE 802.3bt compliant PSE <sup>14</sup>
Power Pack (Optional)	Input: 1.5 A maximum @ 100-240VAC, 50/60 Hz; Output: 2.5 A @ 24VDC; Model: <a href="#">PW-2420RU</a>

## Environmental

---

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)

## Construction

---

Chassis	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
Mounting	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

Height	8.61 in. (219 mm)
Width	9.27 in. (236 mm)
Depth	1.22 in. (31 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

### Regulatory Model: M202234002

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

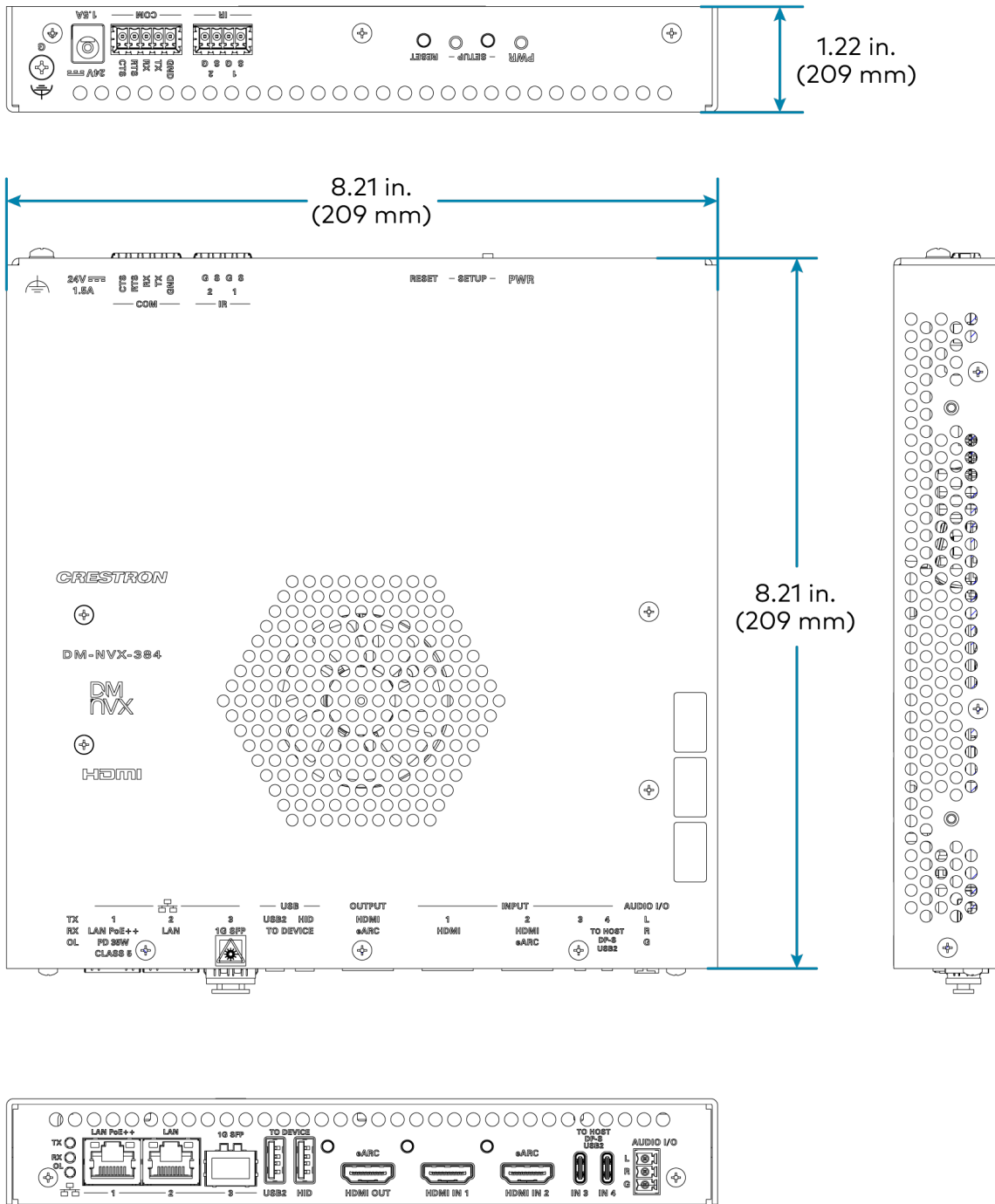
#### Notes:

1. In encoder mode, the stream type of the DM-NVX-384 must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-384 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-384 is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-384 decoder.
2. As an encoder, the DM-NVX-384 transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-384 does not transmit audio via the secondary 2-channel stream when it receives multichannel audio.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.



4. 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.
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.
7. USB-C connections require USB-C cables that support DisplayPort Alt Mode video in order to pass video signal. Not all USB-C cables can support DisplayPort Alt Mode video.
8. The analog audio port can function as an input or output—not both. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. The DM-NVX-384 can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. Refer to the "Power" specifications section for approved powering options.
11. When PoE+ is used to power the DM-NVX-384, a maximum of 500mA is available to power both the USB HOST and USB HID ports. To prevent possible instability issues, it is recommended that the [PW-2420RU](#) power pack (sold separately) be used.
12. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-384 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
13. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-384 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
14. In order for Ethernet port 1 to receive PoE+, the port requires connection to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ PSE port. Cabling that connects to a PoE+ PSE port is designed for intrabuilding use only.

# Dimension Drawings



# DM-NVX-D10 Specifications

Product specifications for the DM-NVX-D10 are provided below.

## Product 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-D20 supported resolutions
<b>Video Resolutions</b>	Up to 1920x1080@60Hz (1080p), 4:4:4 color sampling, and Deep Color 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 1.4, AES-128, PKI

### Video

---

<b>Output Signal Types</b>	HDMI with Deep Color and 4K60 4:2:0 support (DVI compatible <sup>1</sup> )
<b>Copy Protection</b>	HDCP 1.4
<b>Resolutions</b>	640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI up to 165MHz pixel clock

### Audio

---

<b>Output Signal Types</b>	HDMI, analog stereo <sup>2</sup>
<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: <0.005% @ 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, 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
RS-232	2-way device control and monitoring up to 115.2k baud
IR/Serial	1-way device control via infrared up to 60 kHz or serial TTL/RS-232 (0-5V) up to 19.2k baud (via control system)
HDMI	HDCP 1.4, EDID, CEC
DM NVX AV-over-IP (via Ethernet)	HDCP 1.4, 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; <sup>3</sup> PoE PD (powered device) port; IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant <sup>4, 5</sup>
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output (DVI compatible <sup>1</sup> )
AUDIO OUT	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; <sup>2</sup> Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
IR	(1) 2-pin 3.5 mm detachable terminal block; IR/Serial port; IR output up to 60 kHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
COM	(1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud
24VDC 0.75A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2407WU</a> power pack (sold separately)
G	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

Ethernet	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
HDMI OUTPUT	(1) Green LED, indicates video signal transmission at the HDMI output

<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>PoE</b>	IEEE 802.3af Type 1 Class 3 (12.95 W) compliant; Compatible with IEEE 802.3af compliant Ethernet switch or third-party PoE compliant PSE5
<b>Power Pack (Optional)</b>	Input: 100-240VAC, 50/60 Hz; Output: 0.75A @ 24VDC; Model: <a href="#">PW-2407WU</a>
<b>Power Consumption</b>	8.6 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 95% RH (noncondensing)
<b>Heat Dissipation</b>	29 BTU/hr
<b>Acoustic Noise</b>	None (fanless)

## Construction

---

<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>	5.04 in. (128 mm)
<b>Width</b>	9.05 in. (230 mm)
<b>Depth</b>	1.00 in. (26 mm)

## Weight

---

1.32 lb (0.60 kg)

## Compliance

---

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

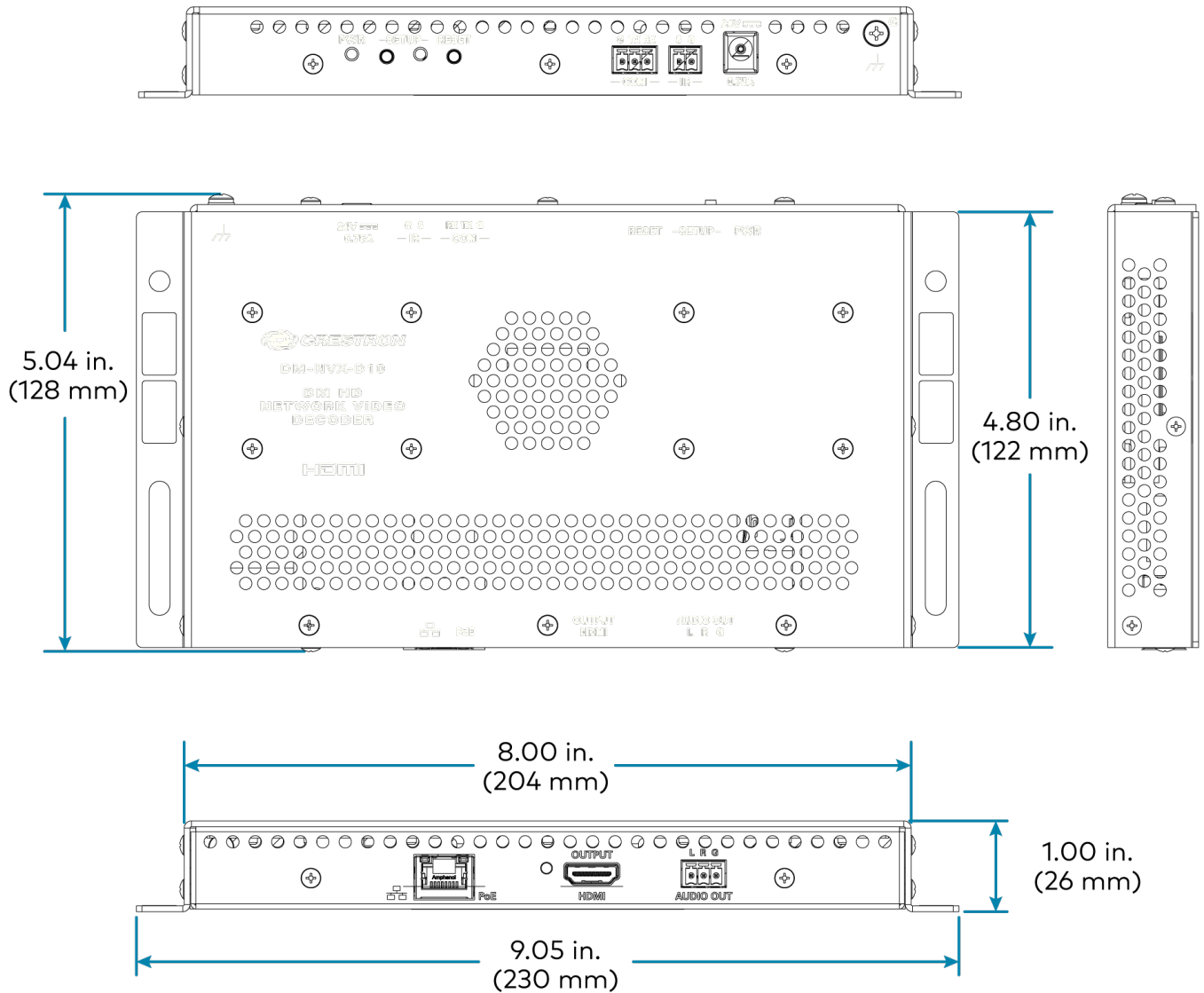
Notes:

- 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.
- The analog audio output is functional only when the DM-NVX-D20 is receiving a 2-channel stereo input signal.
- The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.

A nonblocking network is required for DM NVX devices.

4. Refer to the "Power" specifications section for approved powering options.
5. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.

## Dimension Drawings



# DM-NVX-D20 Specifications

Product specifications for the DM-NVX-D20 are provided below.

## Product 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-D20 supported resolutions
<b>Video Resolutions</b>	HDMI with Deep Color and 4K60 4:2:0 support <sup>1</sup>
<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>2</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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 <sup>3</sup>
<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

**Analog Performance**      Frequency Response: 20 Hz to 20 kHz  $\pm 0.5$  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 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

**RS-232**      2-way device control and monitoring up to 115.2k baud

**IR/Serial**      1-way device control via infrared up to 60 kHz or serial TTL/RS-232 (0-5V) up to 19.2k baud (via control system)

**HDMI**      HDCP 2.3, EDID, CEC

**DM NVX AV-over-IP (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;<sup>4</sup>  
PoE PD (powered device) port;  
IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant<sup>5, 6</sup>

**HDMI OUTPUT**      (1) HDMI Type A connector, female;  
HDMI digital video/audio output<sup>1</sup> (DVI compatible<sup>2</sup>)

**AUDIO OUT**      (1) 5-pin 3.5 mm detachable terminal block;  
Balanced/unbalanced stereo line-level audio output;<sup>3</sup>  
Output Impedance: 200  $\Omega$  balanced, 100  $\Omega$  unbalanced;  
Maximum Output Level: 4V<sub>rms</sub> balanced, 2V<sub>rms</sub> unbalanced

**IR**      (1) 2-pin 3.5 mm detachable terminal block;  
IR/Serial port;  
IR output up to 60 kHz;  
1-way serial TTL/RS-232 (0-5V) up to 19200 baud;  
[IRP2](#) emitter sold separately

**COM**      (1) 3-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Up to 115.2k baud

**24VDC 0.75A**      (1) 2.1 x 5.5 mm DC power connector;  
24VDC power input;  
[PW-2407WU](#) power pack (sold separately)

**G**      (1) 6-32 screw;  
Chassis ground lug



## Controls and Indicators

---

<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>PoE</b>	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 <sup>6</sup>
<b>Power Pack (Optional)</b>	Input: 100-240VAC, 50/60 Hz; Output: 0.75A @ 24VDC; Model: <a href="#">PW-2407WU</a>
<b>Power Consumption</b>	8.6 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 90% RH (noncondensing)
<b>Heat Dissipation</b>	29 BTU/hr
<b>Acoustic Noise</b>	None (fanless)

## Construction

---

<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>	5.04 in. (128 mm)
<b>Width</b>	9.05 in. (230 mm)
<b>Depth</b>	1.00 in. (26 mm)

## Weight

---

1.32 lb (0.60 kg)

## Compliance

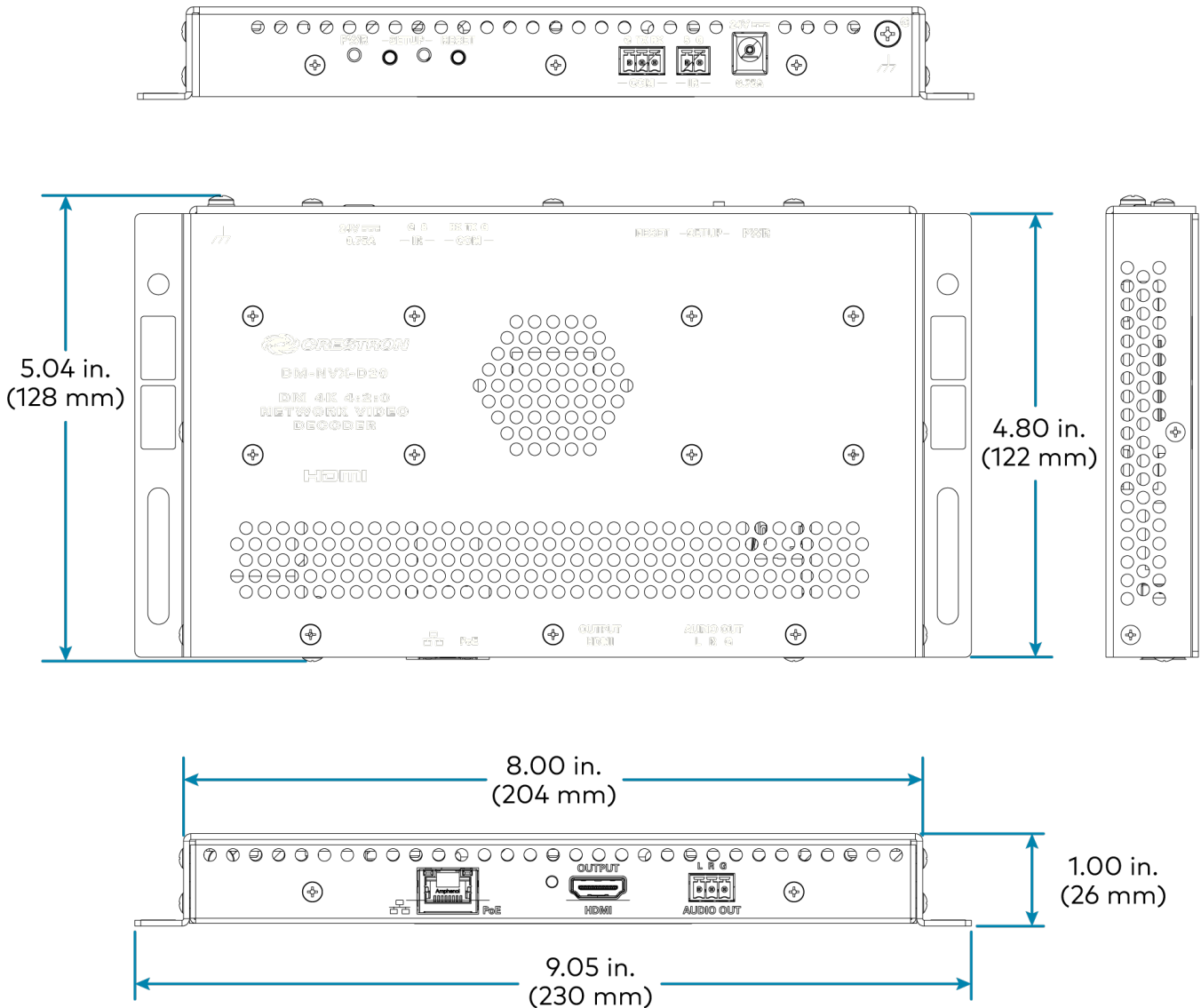
---

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

Notes:

1. For 4K60 4:2:0 or 4K30 4:4:4 performance, 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. 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.
3. The analog audio output is functional only when the DM-NVX-D20 is receiving a 2-channel stereo input signal.
4. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
5. Refer to the "Power" specifications section for approved powering options.
6. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.

## Dimension Drawings



# DM-NVX-D200 Specifications

Product specifications for the DM-NVX-D200 are provided below.

## Product 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 <sup>1</sup>
<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>2</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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 <sup>3</sup>
<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

**Analog Performance**      Frequency Response: 20 Hz to 20 kHz  $\pm$ 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, autonegotiating, 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

**RS-232**      2-way device control and monitoring up to 115.2k baud

**IR/Serial**      1-way device control via infrared up to 60 kHz or serial TTL/RS-232 (0-5V) up to 19.2k baud (via control system)

**HDMI**      HDCP 2.3, EDID, CEC

**DM NVX AV-over-IP (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;<sup>4</sup>  
PoE+ PD (powered device) port;  
IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant<sup>5, 6</sup>

**HDMI OUTPUT**      (1) HDMI Type A connector, female;  
HDMI digital video/audio output<sup>1</sup> (DVI compatible<sup>2</sup>)

**AUDIO**      (1) 5-pin 3.5 mm detachable terminal block;  
Balanced/unbalanced stereo line-level audio output;<sup>3</sup>  
Output Impedance: 200  $\Omega$  balanced, 100  $\Omega$  unbalanced;  
Maximum Output Level: 4V<sub>rms</sub> balanced, 2V<sub>rms</sub> unbalanced

**IR**      (1) 2-pin 3.5 mm detachable terminal block;  
IR/Serial port;  
IR output up to 60 kHz;  
1-way serial TTL/RS-232 (0-5V) up to 19200 baud;  
[IRP2](#) emitter sold separately

**COM**      (1) 3-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Up to 115.2k baud

**24VDC 1.25A**      (1) 2.1 x 5.5 mm DC power connector;  
24VDC power input;  
[PW-2407WU](#) power pack (sold separately)

**G**      (1) 6-32 screw;  
Chassis ground lug

## Controls and Indicators

---

<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>PoE</b>	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 <sup>6</sup>
<b>Power Pack (Optional)</b>	Input: 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: <a href="#">PW-2412WU</a>
<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 90% RH (noncondensing)
<b>Heat Dissipation</b>	40.6 BTU/hr
<b>Acoustic Noise</b>	33 dBA typical

## Construction

---

<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

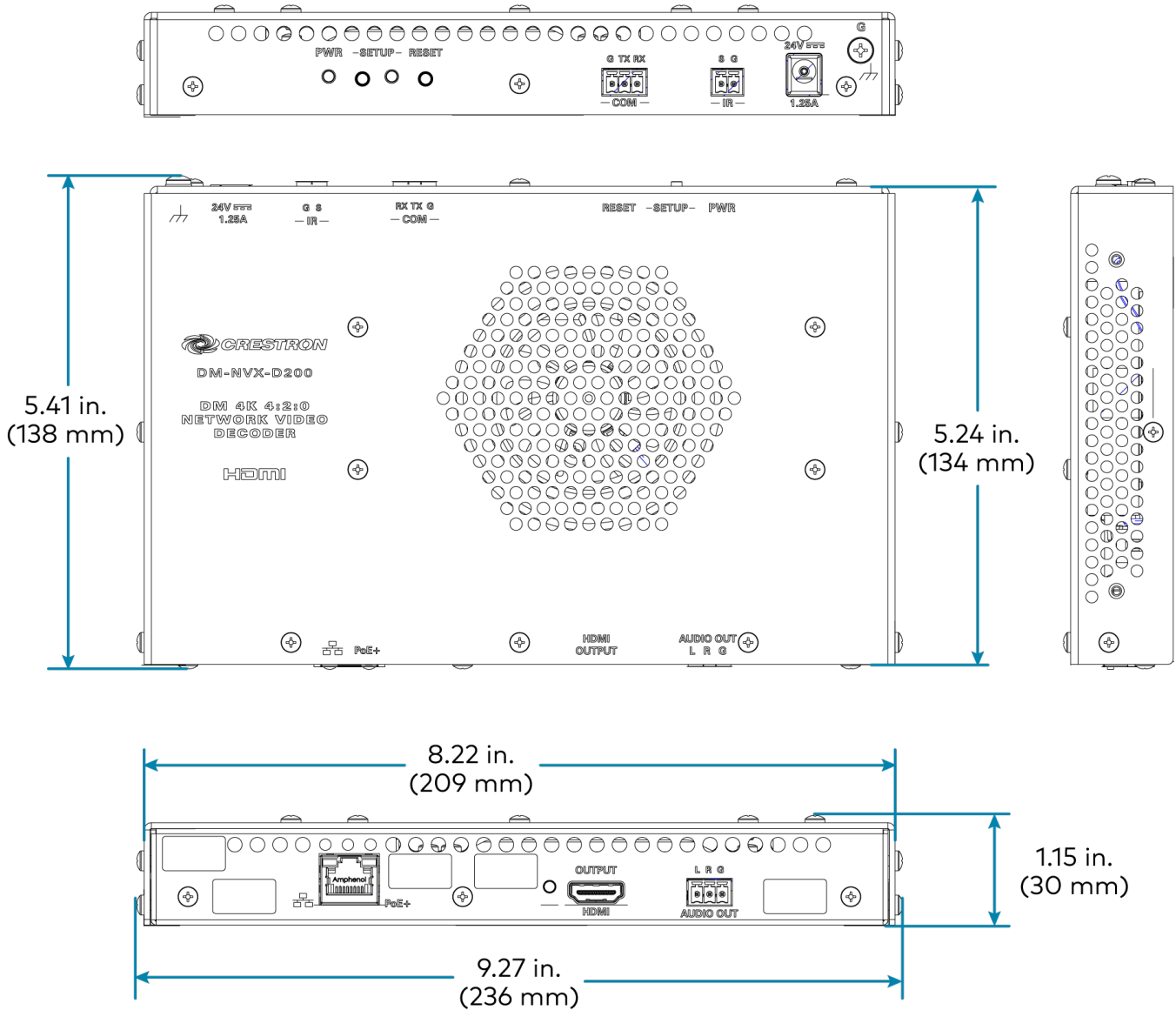
---

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

Notes:

1. For 4K60 4:2:0 or 4K30 4:4:4 performance, 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. 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.
3. The analog audio output is functional only when the DM-NVX-D200 is receiving a 2-channel stereo input signal.
4. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
5. Refer to the "Power" specifications section for approved powering options.
6. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.

## Dimension Drawings



# DM-NVX-D30 Specifications

Product specifications for the DM-NVX-D30 are provided below.

## Product Specifications

### Decoding

<b>Stream Type</b>	Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color 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 <sup>2</sup>
<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 HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>4</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

---

<b>Output Signal Types</b>	HDMI, analog stereo <sup>5</sup>
<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 $\pm$ 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
<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, 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>USB</b>	USB 2.0 computer console (for setup)
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system); Computer console (for setup)
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>Ethernet</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>6</sup> PoE+ PD (powered device) port; IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant <sup>7, 8</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>4</sup> )



<b>AUDIO</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output;5 Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 1.25A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC 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>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address and also used to change operating mode (TX or RX)
<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 PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE8
<b>Power Pack (Optional)</b>	Input: 0.8A maximum @ 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: <a href="#">PW-2412WU</a>
<b>Power Consumption</b>	16 W typical

## Environmental

---

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)
Heat Dissipation	48 BTU/hr
Acoustic Noise	33 dBA typical

## Construction

---

Chassis	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
Mounting	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

Height	5.41 in. (138 mm)
Width	9.27 in. (236 mm)
Depth	1.15 in. (30 mm)

## Weight

---

1.7 lb (0.77 kg)

## Compliance

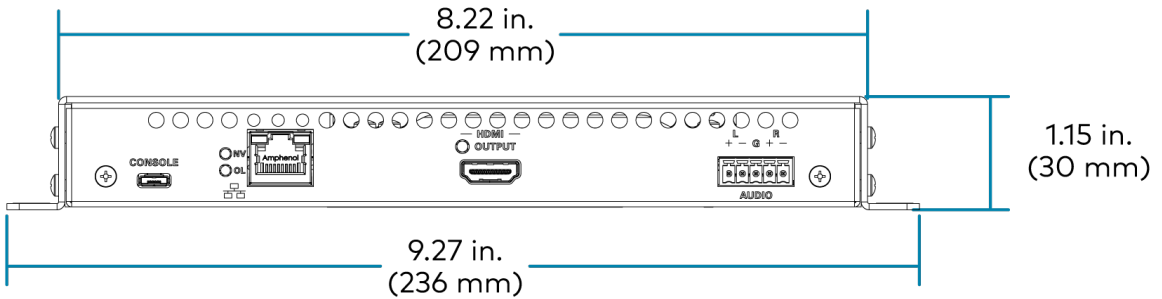
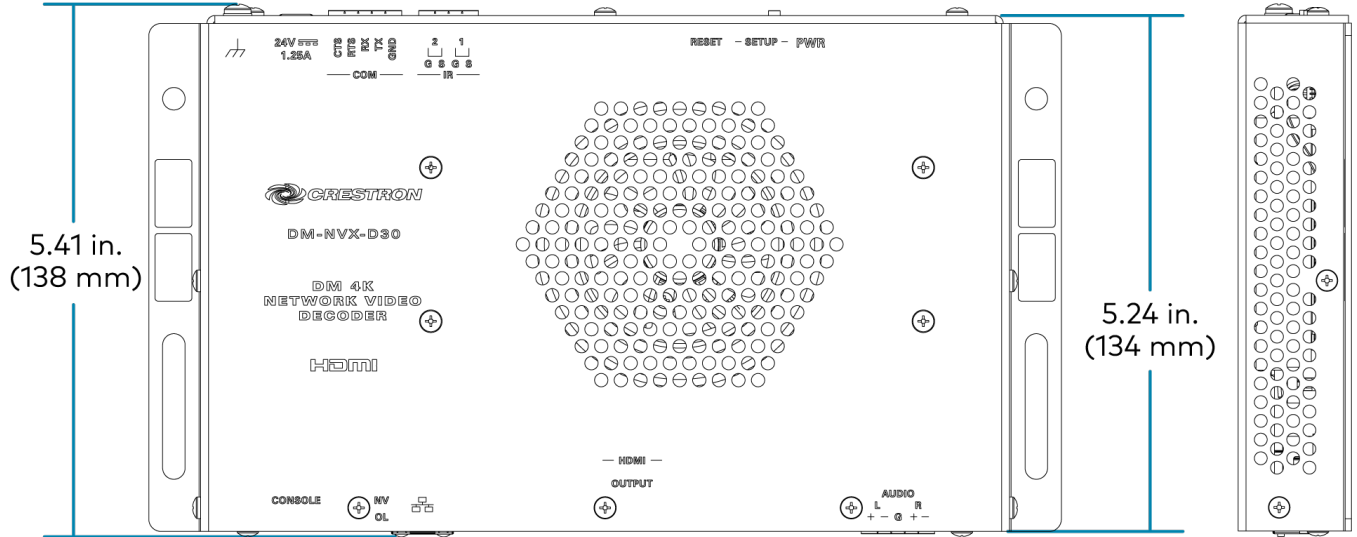
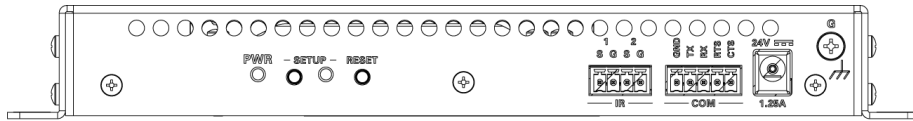
---

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

### Notes:

1. For a DM NVX 4K60 4:4:4 decoder, the proper stream type is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.
4. 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.
5. The analog audio output is functional only when the DM-NVX-D30 is receiving a 2-channel stereo input signal.
6. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
7. Refer to the "Power" specifications section for approved powering options.
8. In order for the Ethernet port to receive PoE+, the port requires connection to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ PSE port. Cabling that connects to a PoE+ PSE port is designed for intrabuilding use only.

# Dimension Drawings



# DM-NVX-E10 Specifications

Product specifications for the DM-NVX-E10 are provided below.

## Product Specifications

### Encoding

---

<b>Video Resolutions</b>	Up to 1920x1080@60Hz (1080p), 4:4:4 color sampling, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
<b>Bit Rates</b>	Fixed: 200 to 950 Mbps, user-specified Adaptive: Dependent on input resolution of the stream
<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 1.4, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with Deep Color and 1080p60 support <sup>1</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>2</sup> )
<b>Copy Protection</b>	HDCP 1.4
<b>Resolutions, Progressive</b>	640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI up to 165 MHz pixel clock

### Audio

---

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>2</sup> )
<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

Analog Output Volume Adjustment -80 to +20 dB

## Communications

---

Ethernet	100/1000 Mbps, auto-switching, autonegotiating, 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
RS-232	2-way device control and monitoring up to 115.2k baud
IR/Serial	1-way device control via infrared up to 60 kHz or serial TTL (0-5V) up to 19.2k baud (via control system)
HDMI	HDCP 1.4, EDID, CEC
DM NVX AV-over-IP (via Ethernet)	HDCP 1.4, 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; <sup>3</sup> PoE PD (powered device) port; IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant <sup>4, 5</sup>
HDMI INPUT	(1) HDMI Type A connector, female; HDMI digital video/audio input; (DVI and Dual-Mode DisplayPort interface compatible <sup>2</sup> )
AUDIO OUT	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; <sup>6</sup> Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
IR	(1) 2-pin 3.5 mm detachable terminal block; IR/Serial port; IR output up to 60 kHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
COM	(1) 3-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud
24VDC 0.75A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2407WU</a> power pack (sold separately)
G	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

Ethernet	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
----------	--

<b>HDMI INPUT</b>	(1) Green LED, indicates sync detection at the HDMI input
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>PoE</b>	IEEE 802.3af Type 1 Class 3 (12.95 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>4</sup>
<b>Power Pack (Optional)</b>	Input: 100-240VAC, 50/60 Hz; Output: 0.75A @ 24VDC; Model: <a href="#">PW-2407WU</a>
<b>Power Consumption</b>	8.6 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 95% RH (noncondensing)
<b>Heat Dissipation</b>	29 BTU/hr
<b>Acoustic Noise</b>	None (fanless)

## Construction

---

<b>Chassis</b>	Metal, black finish, vented top, front, rear, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	5.04 in. (128 mm)
<b>Width</b>	9.05 in. (230 mm)
<b>Depth</b>	1.00 in. (26 mm)

## Weight

---

1.32 lb (0.60 kg)

## Compliance

---

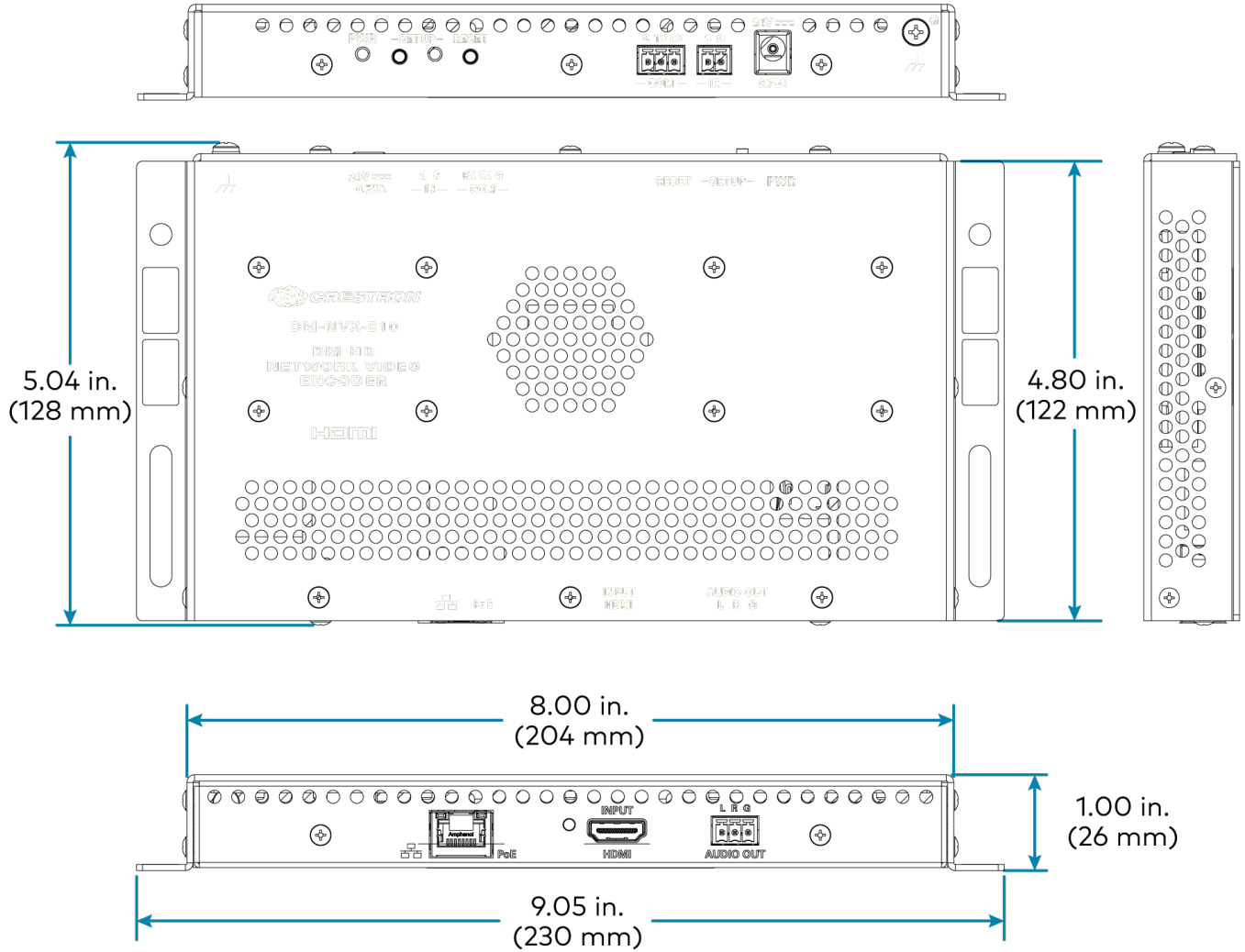
Bureau Veritas Listed for US and Canada, IC, CE, FCC Part 15 Class B digital device

Notes:

1. 3D formats are not supported.
2. 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.
3. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM<sup>®</sup> ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.

4. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.
5. Refer to the "Power" specifications section for approved powering options.
6. The analog audio output is functional only when the DM-NVX-E20 is receiving a 2-channel stereo input signal.

## Dimension Drawings



# DM-NVX-E20 Specifications

Product specifications for the DM-NVX-E20 are provided below.

## Product Specifications

### Encoding

<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>	Fixed: 200 to 950 Mbps, user-specified <sup>1</sup> Adaptive: Dependent on input resolution of the stream
<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>Input Signal Types</b>	HDMI with Deep Color and 4K60 4:2:0 support <sup>2, 3</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>4</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>4</sup> )
<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



**Analog Performance**      Frequency Response: 20 Hz to 20 kHz  $\pm 0.5$  dB;  
S/N Ratio: >95 dB 20 Hz to 20 kHz A-weighted;  
THD+N: <0.0005% @ 1 kHz;  
Stereo Separation: >90 dB

**Analog Output Volume Adjustment**      -80 to +20 dB

## Communications

---

**Ethernet**      100/1000 Mbps, auto-switching, autonegotiating, 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

**RS-232**      2-way device control and monitoring up to 115.2k baud

**IR/Serial**      1-way device control via infrared up to 60 kHz or serial TTL (0-5V) up to 19.2k baud (via control system)

**HDMI**      HDCP 2.3, EDID, CEC

**DM NVX AV-over-IP (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;<sup>5</sup>  
PoE PD (powered device) port;  
IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant<sup>6, 7</sup>

**HDMI INPUT**      (1) HDMI Type A connector, female;  
HDMI digital video/audio input;  
(DVI and Dual-Mode DisplayPort interface compatible<sup>4</sup>)

**AUDIO OUT**      (1) 5-pin 3.5 mm detachable terminal block;  
Balanced/unbalanced stereo line-level audio output;<sup>8</sup>  
Output Impedance: 200  $\Omega$  balanced, 100  $\Omega$  unbalanced;  
Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced

**IR**      (1) 2-pin 3.5 mm detachable terminal block;  
IR/Serial port;  
IR output up to 60 kHz;  
1-way serial TTL/RS-232 (0-5V) up to 19200 baud;  
[IRP2](#) emitter sold separately

**COM**      (1) 3-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Up to 115.2k baud

**24VDC 0.75A**      (1) 2.1 x 5.5 mm DC power connector;  
24VDC power input;  
[PW-2407WU](#) power pack (sold separately)

**G**      (1) 6-32 screw;  
Chassis ground lug

## Controls and Indicators

---

<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>HDMI INPUT</b>	(1) Green LED, indicates sync detection at the HDMI input
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>PoE</b>	IEEE 802.3af Type 1 Class 3 (12.95 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>6</sup>
<b>Power Pack (Optional)</b>	Input: 100-240VAC, 50/60 Hz; Output: 0.75A @ 24VDC; Model: <a href="#">PW-2407WU</a>
<b>Power Consumption</b>	8.6 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 95% RH (noncondensing)
<b>Heat Dissipation</b>	29 BTU/hr
<b>Acoustic Noise</b>	None (fanless)

## Construction

---

<b>Chassis</b>	Metal, black finish, vented top, front, rear, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	5.04 in. (128 mm)
<b>Width</b>	9.05 in. (230 mm)
<b>Depth</b>	1.00 in. (26 mm)

## Weight

---

1.32 lb (0.60 kg)

## Compliance

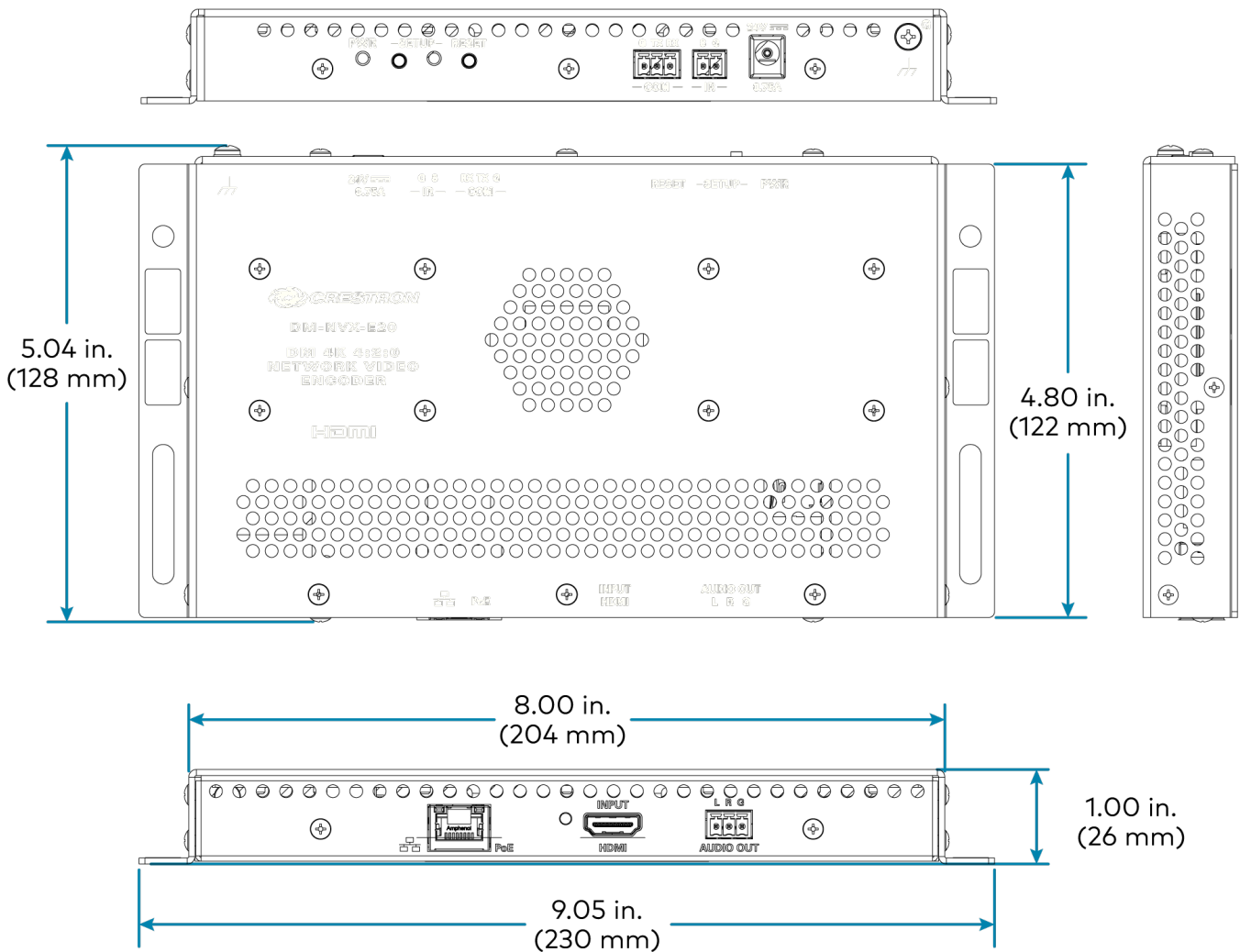
---

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

Notes:

1. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
2. 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.
3. 3D formats are not supported.
4. 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.
5. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
6. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.
7. Refer to the "Power" specifications section for approved powering options.
8. The analog audio output is functional only when the DM-NVX-E20 is receiving a 2-channel stereo input signal.

## Dimension Drawings



# DM-NVX-E30 Specifications

Product specifications for the DM-NVX-E30 are provided below.

## Product Specifications

### Encoding

---

<b>Stream Type</b>	Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ;
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound),
<b>Bit Rates</b>	Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream)
<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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
240 Hz		4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible5)
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 computer console (for setup)
<b>RS-232</b>	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking via control system
<b>IR/Serial</b>	1-way device control via infrared up to 1.1 MHz or serial TTL (0-5V) up to 19.2k baud (via control system)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>7</sup> PoE+ PD (powered device) port; IEEE 802.3at Type 2 PoE+ Class 4 (25.5 W) compliant <sup>8, 9</sup>
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; (DVI and Dual-Mode DisplayPort interface compatible) <sup>5</sup>
<b>AUDIO</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; <sup>6</sup> Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)
<b>IR 1-2</b>	(1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5V) up to 19200 baud; <a href="#">IRP2</a> emitter sold separately
<b>COM</b>	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
<b>24VDC 1.25A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC 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>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>HDMI INPUT</b>	(1) Green LED, indicates sync detection at the HDMI input

<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power is being supplied; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<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 PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>9</sup>
<b>Power Pack (Optional)</b>	Input: 0.8A maximum @ 100-240VAC, 50/60 Hz; Output: 1.25A @ 24VDC; Model: <a href="#">PW-2412WU</a>
<b>Power Consumption</b>	15 W typical

## Environmental

---

<b>Temperature</b>	32° to 104°F (0° to 40°C)
<b>Humidity</b>	10% to 90% RH (noncondensing)
<b>Heat Dissipation</b>	48 BTU/hr
<b>Acoustic Noise</b>	33 dBA typical

## Construction

---

<b>Chassis</b>	Metal, black finish, integral mounting flanges, fan cooled; Vented top, front, bottom, and sides
<b>Mounting</b>	Freestanding, surface mount, or attach to a single rack rail

## Dimensions

---

<b>Height</b>	5.41 in. (138 mm)
<b>Width</b>	9.27 in. (236 mm)
<b>Depth</b>	1.15 in. (30 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

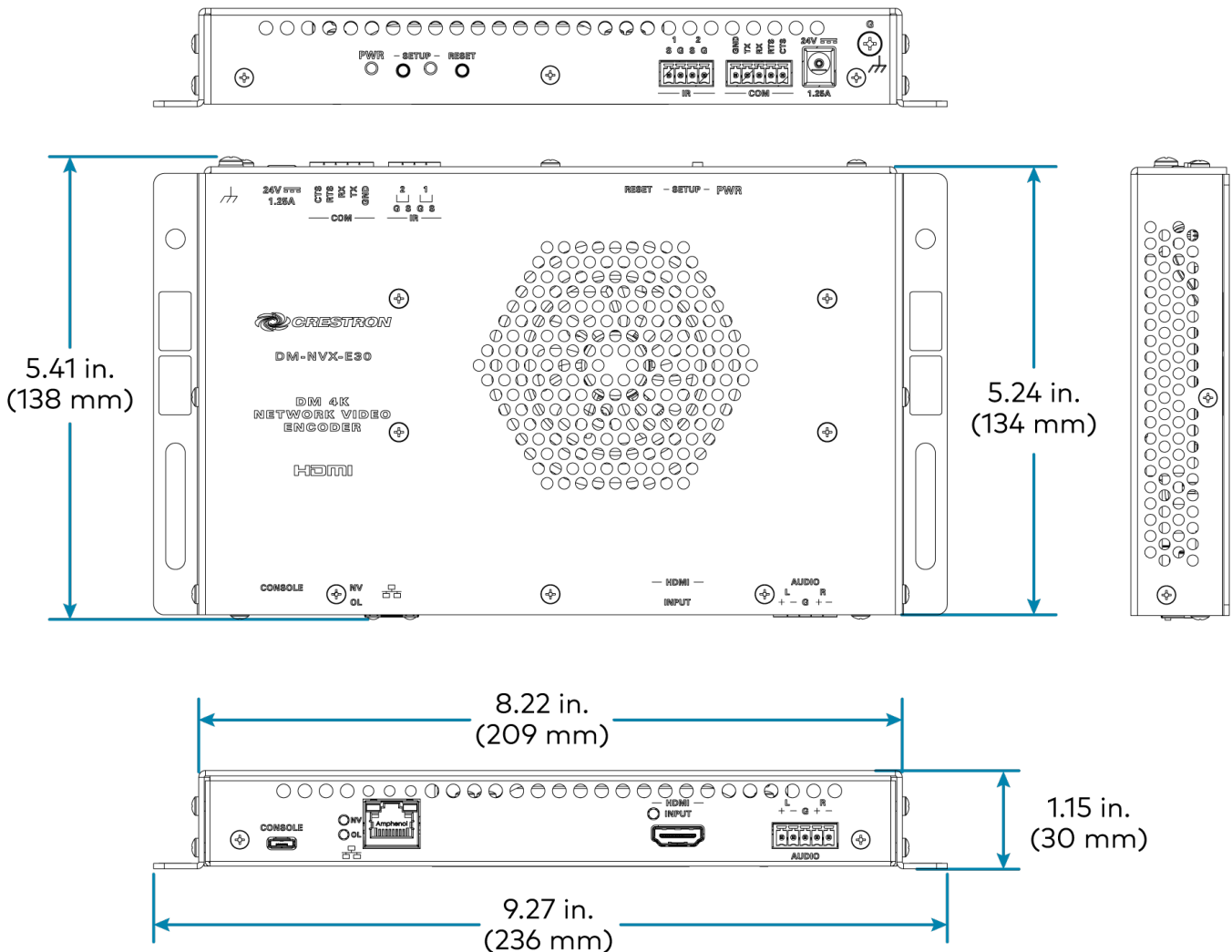
Bureau Veritas Listed for US and Canada, IC, CE, FCC Part 15 Class B digital device

Notes:

1. The stream type of a DM NVX 4K60 4:4:4 encoder must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM NVX 4K60 4:4:4 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.

3. 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.
4. 3D formats are not supported.
5. 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.
6. The analog audio output is functional only when the DM-NVX-E30 is receiving a 2-channel stereo input signal.
7. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
8. Refer to the "Power" specifications section for approved powering options.
9. In order for the Ethernet port to receive PoE+, the port requires connection to a PoE+ compliant Ethernet switch or other equipment that has a PoE+ PSE port. Cabling that connects to a PoE+ PSE port is designed for intrabuilding use only.

## Dimension Drawings





# DM-NVX-E760 Specifications

Product specifications for the DM-NVX-E760 are provided below.

## Product Specifications

### Encoding

<b>Stream Type</b>	Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
<b>Bit Rates</b>	Fixed: 200 to 950 Mbps - user specified, <sup>2</sup> Adaptive: dependent on input resolution of the stream), or Variable: less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream
<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 <sup>3</sup> , AES-128, PKI

### Video

<b>Input Signal Types</b>	DM 8G+ and HDBaseT with HDR10, Deep Color, and 4K60 4:4:4 support; DM Essentials with 4K60 4:2:0 support <sup>4</sup>
<b>Copy Protection</b>	HDCP 2.3 <sup>3</sup>
<b>Resolutions</b>	Common resolutions are listed in the following table. <sup>5</sup>

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K and 3840x2160 4K UHD	30 Hz	4:4:4	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit	
	120 Hz	4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 120 Hz and 240 Hz are not supported due to HDBaseT limitations.

**Audio**

<b>Input Signal Types</b>	DM 8G+, HDBaseT, DM Essentials
<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: <0.005% @ 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, 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>DigitalMedia™</b>	DM 8G+, DM Essentials, HDCP 2.3 <sup>3</sup> , EDID, PoDM+
<b>HDBaseT</b>	HDCP 2.3, EDID, PoE+
<b>USB</b>	USB 2.0 computer console (for setup)
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

**Connectors**

<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>6</sup> PoE++ or UPOE PD (powered device) port; IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant <sup>7</sup>
<b>Ethernet 2</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>6</sup>
<b>Ethernet 3</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>8</sup>

<b>DM INPUT</b>	(1) 8-pin RJ-45 connector, female, shielded; DM 8G+ (HDBaseT standard compliant) or DM Essentials input; PoDM+ (HDBaseT PoE+ compatible) PSE (power sourcing equipment) port or DM Essentials power port; <sup>9</sup> Connects to the DM 8G+ output of a DM switcher, transmitter or other DM device, to the DM Essentials port of a DM Essentials transmitter, or to an HDBaseT device via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable <sup>10</sup>
<b>AUDIO OUT</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; <sup>11</sup> Impedance: 200 Ω balanced, 100 Ω unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)
<b>24VDC 2.5A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; <a href="#">PW-2420RU</a> power pack included
<b>G</b>	(1) 6-32 screw; Chassis ground lug

## Controls and Indicators

---

<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) network video
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>DM INPUT</b>	(2) LEDs; Green indicates DM link status; Amber indicates video and HDCP signal presence
<b>PWR</b>	(1) Bicolor green/amber LED; Indicates operating power supplied via PoE++, UPOE, or the included power pack; Amber indicates device is booting; Green indicates device is operational
<b>SETUP</b>	(1) Red LED and (1) push button, displays onscreen IP address
<b>RESET</b>	(1) Recessed push button, reboots the device

## Power

---

<b>Power Pack (Included)</b>	Input: 1.3 A maximum @ 100-240VAC, 50/60 Hz; Output: 2.5 A @ 24VDC; Model: <a href="#">PW-2420RU</a>
<b>PoE++ or UPOE</b>	IEEE 802.3bt Type 3 Class 5 (60 W/4 pair) compliant; Compatible with IEEE 802.3bt compliant Ethernet switch or third-party compliant PSE
<b>Power Consumption</b>	20 W typical without device connection to DM INPUT port <sup>12</sup>

## Environmental

---

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)
Heat Dissipation	68 BTU/hr
Acoustic Noise	33 dBA typical

## Construction

---

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	8.60 in. (219 mm)
Width	9.27 in. (236 mm)
Depth	1.25 in. (32 mm)

## Weight

---

2.0 lb (0.91 kg)

## Compliance

---

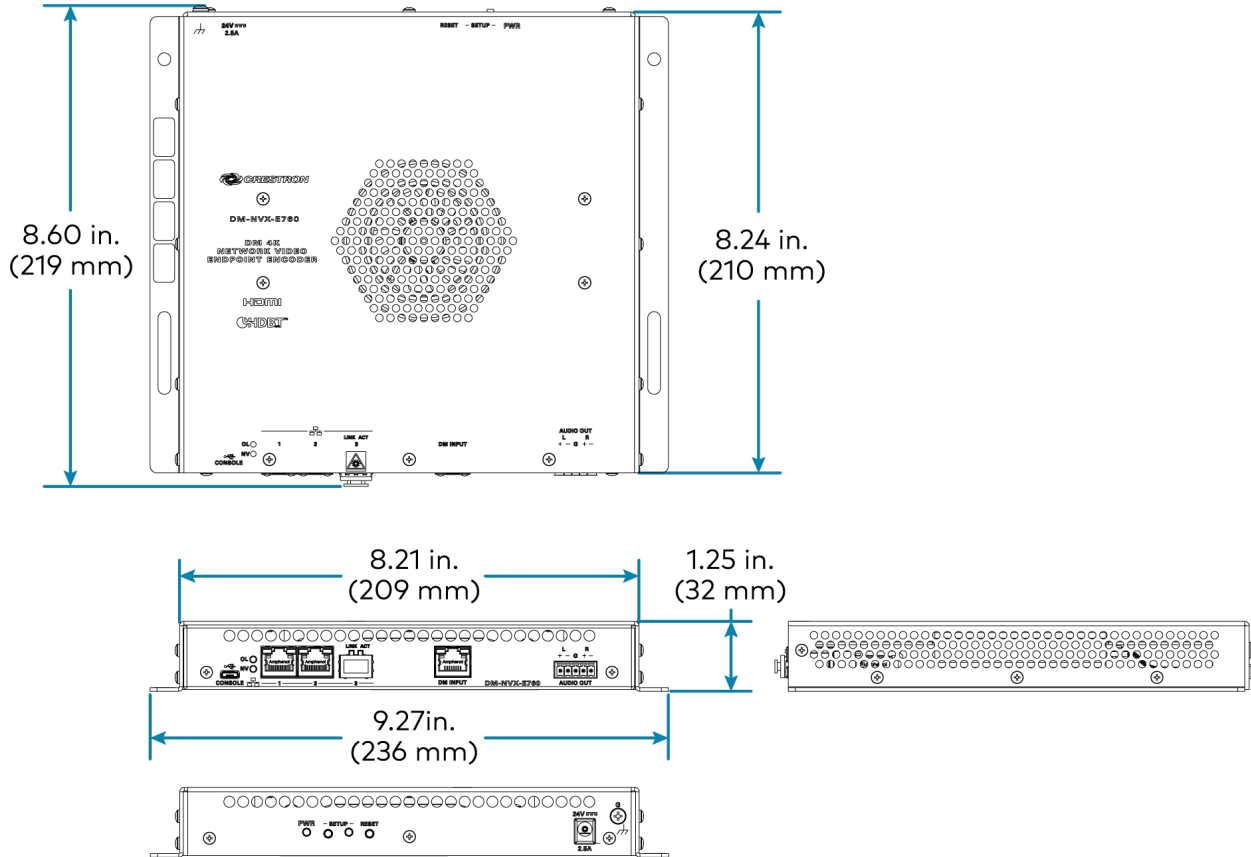
Intertek® Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

### Notes:

1. The stream type of a DM NVX 4K60 4:4:4 encoder must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-E760 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. The DM-NVX-E760 supports HDCP 2.3. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for the HDCP version supported by those devices.
4. 3D formats are not supported.
5. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for information about the maximum resolution supported by those devices.
6. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-E760 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
7. Refer to the "Power" specifications section for approved powering options.
8. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-E760 are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
9. The DM INPUT port can be used to power DM 8G+ and DM Essentials transmitters only when those devices are not connected to a 24VDC power pack.  
Wiring that connects to a PoDM+ or HDBaseT PoE+ PSE port or to a DM Essentials port is designed for intrabuilding use only.

10. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for cable length information.
11. The analog audio output is functional only when the DM-NVX-E760 is receiving a 2-channel stereo input signal.
12. When the DM INPUT port is connected to a DM 8G+ or DM Essentials device, the power consumption of the DM-NVX-E760 varies depending on the connected device.

## Dimension Drawings



# DM-NVX-E20-2G Specifications

Product specifications for the DM-NVX-E20-2G are provided below.

## Product Specifications

### Encoding

<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>	Fixed: 200 to 950 Mbps, user-specified <sup>1</sup> Adaptive: Dependent on input resolution of the stream
<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>Input Signal Types</b>	HDMI with Deep Color and 4K60 4:2:0 support <sup>2, 3</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>4</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>4</sup> ), 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>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<b>AES67</b>	24-bit 48 kHz

**Analog Performance**      Frequency Response: 20 Hz to 20 kHz  $\pm$ 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, autonegotiating, 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 AV-over-IP (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;<sup>5</sup>  
 PoE PD (powered device) port;  
 IEEE 802.3af Type 1 PoE Class 3 (12.95 W) compliant<sup>6, 7</sup>

**HDMI INPUT**      (1) HDMI Type A connector, female;  
 HDMI digital video/audio input;  
 (DVI and Dual-Mode DisplayPort interface compatible<sup>4</sup>)

**AUDIO IN**      (1) 1/8 in. (3.5 mm) connector, female TRS;  
 Unbalanced stereo line level audio input;  
 Maximum Input Level: 2V<sub>rms</sub>;  
 Input Impedance: 44 k $\Omega$

**24VDC 0.75A**      (1) 2-pin captive screw terminal block;  
 24VDC power input;  
[PW-2407WUL](#) power pack (sold separately)

**G**      (1) M3 screw;  
 Chassis ground lug

## Controls and Indicators

---

**Ethernet**      (2) LEDs;  
 Green indicates Ethernet links status;  
 Amber indicates Ethernet activity

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

**PWR**      (1) Bicolor green/amber LED;  
 Indicates operating power is being supplied;  
 Amber indicates device is booting;  
 Green indicates device is operational

**SETUP**      (1) Red LED and (1) push button, displays onscreen IP address

**RESET**      (1) Recessed push button, reboots the device

## Power

---

PoE	IEEE 802.3af Type 1 Class 3 (12.95 W) compliant; Compatible with PoE+ compliant Ethernet switch or third-party IEEE 802.3at compliant PSE <sup>6</sup>
Power Pack (Optional)	Input: 100-240VAC, 50/60 Hz; Output: 0.75A @ 24VDC; Model: <a href="#">PW-2407WUL</a>
Power Consumption	9.2 W typical

## Environmental

---

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

## Construction

---

Chassis	Metal housing and bracket with polycarbonate label overlay
Mounting	Mounts into a 2-gang, 2 in. (51 mm) deep U.S. electrical box or plaster ring; Requires an <a href="#">FP-G2-DM</a> 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

---

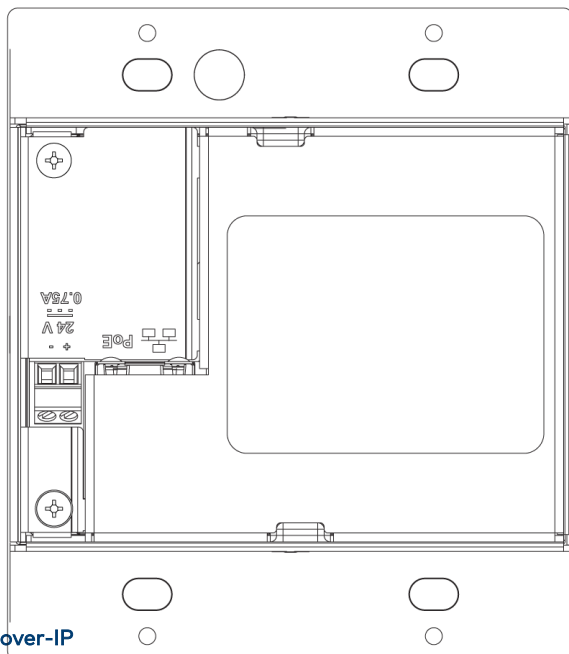
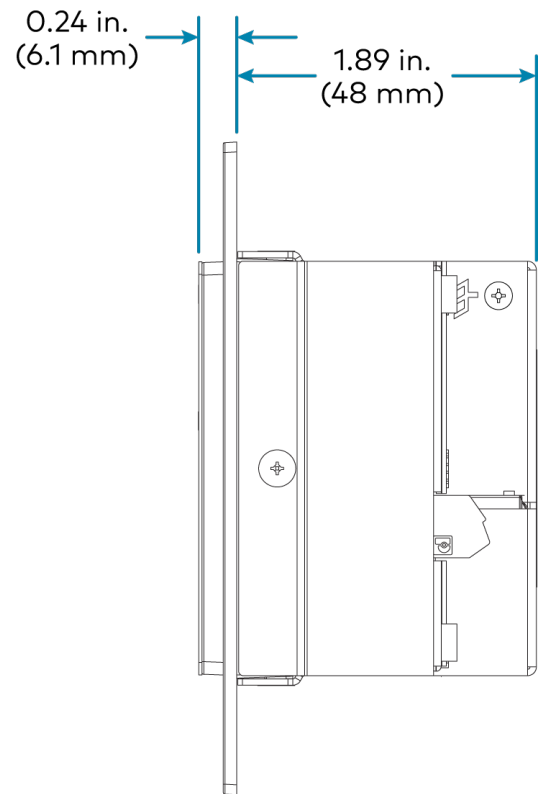
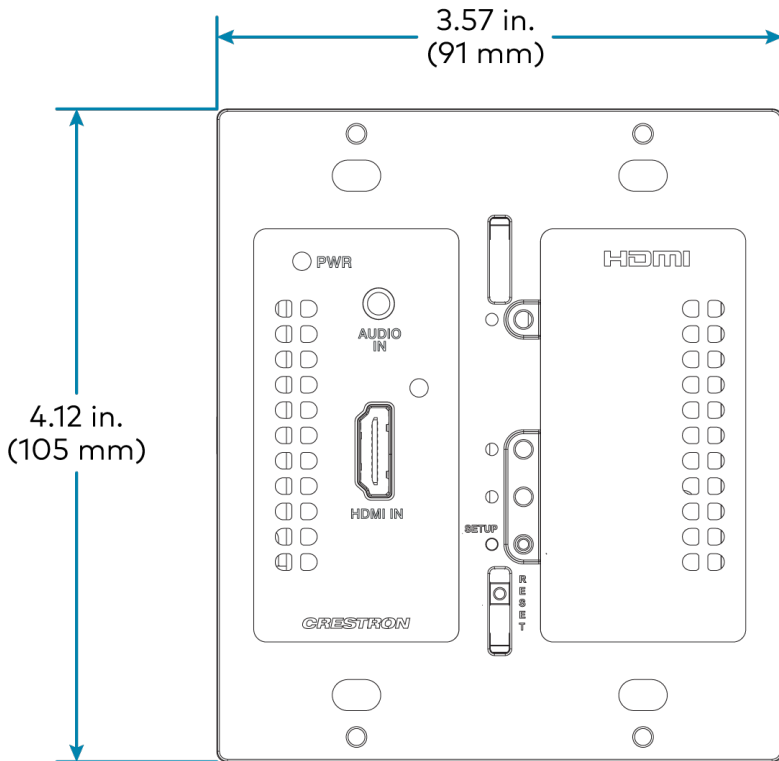
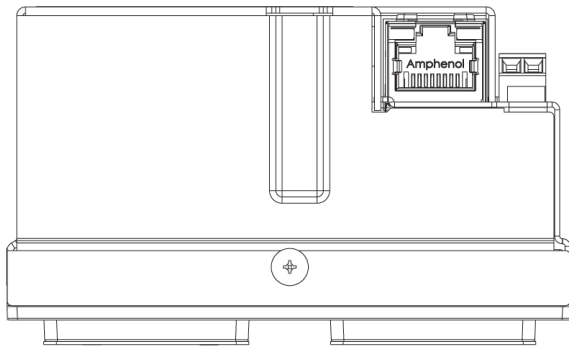
Intertek® Listed for US and Canada, IC, CE, FCC Part 15 Class B digital device

### Notes:

1. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
2. 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.
3. 3D formats are not supported.
4. 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.
5. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
6. In order for the Ethernet port to receive PoE, the port requires connection to a PoE compliant Ethernet switch or other equipment that has a PoE PSE port. Cabling that connects to a PoE PSE port is designed for intrabuilding use only.
7. Refer to the "Power" specifications section for approved powering options.



# Dimension Drawings



# DM-NVX-350C Specifications

Product specifications for the DM-NVX-350C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto-switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

**Audio**

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>6</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; USB 2.0 computer console (for setup)
<b>HDMI</b>	HDCP 2.2, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	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

---

<b>USB DEVICE</b>	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
<b>Ethernet 1-2</b>	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>9</sup>
<b>Ethernet 3</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>10</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>HDMI INPUT 1-2</b>	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced

## Controls and Indicators

---

<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status

<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input

## Construction

---

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

## Weight

---

15.1 oz (427 g)

## Compliance

---

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

### Notes:

- In encoder mode, the stream type of the DM-NVX-350C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-350C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-350C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-350C decoder.
- The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
- 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.
- 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.
- The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-350C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351 or DM-NVX-351C.
- The DM-NVX-350C does not down-mix Dolby Atmos MAT 2.0 audio.
- The DM-NVX-350C can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
- The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-350C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
  
A nonblocking network is required for DM NVX devices.
- Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-350C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# DM-NVX-351C Specifications

Product specifications for the DM-NVX-351C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto-switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI (multichannel pass-through or 2-channel downmix), analog stereo (2-channel downmix) <sup>6</sup>
<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 <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB



Analog Output Volume Adjustment	-80 to +20 dB
Audio Delay	0 to 1200 ms

## 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 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
USB	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; USB 2.0 computer console (for setup)
HDMI	HDCP 2.2, EDID, CEC
DM NVX AV-over-IP (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

---

USB DEVICE	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
USB HOST	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
Ethernet 1-2	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>9</sup>
Ethernet 3	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>10</sup>
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
HDMI INPUT 1-2	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
AUDIO I/O	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced

## Controls and Indicators

---

TX	(1) Green LED, indicates unit is in encoder (transmitter) mode
RX	(1) Green LED, indicates unit is in decoder (receiver) mode
OL	(1) Green LED, indicates an online connection to a control system via Ethernet

<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input

## Construction

---

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

## Weight

---

15.1 oz (427 g)

## Compliance

---

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

### Notes:

- In encoder mode, the stream type of the DM-NVX-351C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-351C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-351C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-351C decoder.
- The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
- 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.
- 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.
- The analog audio port can function as an input or output, not both.
- The DM-NVX-351C does not down-mix Dolby Atmos MAT 2.0 audio.
- The DM-NVX-351C can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
- The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-351C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
  
A nonblocking network is required for DM NVX devices.
- Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-351C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# DM-NVX-352C Specifications

Product specifications for the DM-NVX-352C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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 2.2, AES-128, PKI

### Video

---

<b>Input Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>Switcher</b>	3x1 in decoder mode (HDMI 1, HDMI 2, Stream) 2x1 in encoder mode, manual or auto-switching, breakaway audio <sup>6</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10 support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x up to 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.2
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 240 Hz is not supported.

**Audio**

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>5</sup> ), analog stereo <sup>6</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>6</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>7</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3; USB 2.0 computer console (for setup)
<b>HDMI</b>	HDCP 2.2, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	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

---

<b>USB DEVICE</b>	(1) USB Type B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>8</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>8</sup> Available Power: 500 mA at 5VDC
<b>Ethernet 1</b>	(1) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>9</sup>
<b>Ethernet 2</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>10</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>3</sup> (DVI compatible <sup>5</sup> )
<b>HDMI INPUT 1-2</b>	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>6</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced

## Controls and Indicators

---

<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet 1</b>	(2) LEDs; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 2 LNK</b>	(1) Green LED, indicates Ethernet link status

<b>Ethernet 2 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT 1-2</b>	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input

## Construction

---

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

## Weight

---

15.1 oz (427 g)

## Compliance

---

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

Notes:

- In encoder mode, the stream type of the DM-NVX-352C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-352C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-352C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-352C decoder.
- The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
- 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.
- 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.
- The analog audio port can function as an input or output, not both. Analog audio output is only functional when the DM-NVX-352C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-351 or DM-NVX-351C.
- The DM-NVX-352C does not down-mix Dolby Atmos MAT 2.0 audio.
- The DM-NVX-352C can be configured to accept the connection of a USB device or a USB host—not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
- The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-352C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
  
A nonblocking network is required for DM NVX devices.
- Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-352C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# DM-NVX-360C Specifications

Product specifications for the DM-NVX-360C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	2x1 in decoder mode (HDMI, Stream), manual or auto-switching, breakaway audio <sup>7</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler (Decoder Mode Only)</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x 8 high
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>8</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , 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>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB
<b>Analog Output Volume Adjustment</b>	-80 to +20 dB



## Communications

---

<b>Ethernet</b>	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 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>USB DEVICE</b>	(1) USB Type-C® connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>9, 10</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>9</sup> Available Power: 500 mA at 5VDC
<b>Ethernet 1-2</b>	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>11</sup>
<b>Ethernet 3 (10/100)</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX Ethernet port
<b>Ethernet 4</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>12</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced

## Controls and Indicators

---

<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode

<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet link status; Amber indicates Ethernet activity
<b>Ethernet 3</b>	(2) LEDs; Green LED indicates Ethernet activity; Amber indicates Ethernet link status
<b>Ethernet 4 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 4 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT</b>	(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

---

15.1 oz (427 g)

## Compliance

---

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

### Notes:

- In encoder mode, the stream type of the DM-NVX-360C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-360C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-360C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-360C decoder.
- As an encoder, the DM-NVX-360C transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-360C does not transmit audio via the 2-channel AES67 stream when it receives multichannel audio.
- The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
- 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.
- 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.
- Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
- The analog audio port can function as an input or output, not both. Analog audio output is functional only when the DM-NVX-360C is receiving a 2-channel stereo input signal. A 2-channel downmix signal from a multichannel surround sound source requires the use of a Crestron DM-NVX-363, DM-NVX-363C, DM-NVX-351, or DM-NVX-351C.

9. The DM-NVX-360C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. USB 2.0 extension and switching over LAN may not work when directly connecting a host PC's USB-C port to a DM-NVX-36X series endpoint's USB-C port. This is a known hardware limitation. Connect the host PC's USB-A port (if available) to the DM NVX endpoint using a USB-A to USB-C cable. A USB OTG USB-C to USB-A adapter may also be used at the host PC's USB-C port, which would be connected to the DM NVX endpoint using a USB-A to USB-C cable.
11. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-360C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
12. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-360C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# DM-NVX-363C Specifications

Product specifications for the DM-NVX-363C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Stream Type</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> )
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	2x1 in decoder mode (HDMI, Stream), manual or auto-switching, breakaway audio <sup>7</sup> , Crestron QuickSwitch HD™ technology
<b>Scaler (Decoder Mode Only)</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing up to 8 wide x 8 high
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI, analog stereo <sup>8</sup>
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, DTS:X, LPCM up to 8 channels <sup>9</sup>
<b>Analog Formats</b>	Stereo 2-channel
<b>Analog-to-Digital Conversion</b>	24-bit 48 kHz
<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: <0.005% @ 1 kHz; Stereo Separation: >90 dB
<b>Analog Output Volume Adjustment</b>	-80 to +20 dB

## Communications

---

<b>Ethernet</b>	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 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>USB</b>	USB 2.0 host or device signal extension and routing, Layer 2 or Layer 3
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>USB DEVICE</b>	(1) USB Type-C® connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host <sup>10, 11</sup>
<b>USB HOST</b>	(1) USB Type A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; <sup>10</sup> Available Power: 500 mA at 5VDC
<b>USB HID</b>	(1) USB Type-A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device; Available Power: 500 mA at 5VDC
<b>Ethernet 1-2</b>	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>12</sup>
<b>Ethernet 3 (10/100)</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX Ethernet port
<b>Ethernet 4</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>13</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> )
<b>AUDIO I/O</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 k $\Omega$ balanced/unbalanced; Maximum Input Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced; Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4V <sub>rms</sub> balanced, 2V <sub>rms</sub> unbalanced

## Controls and Indicators

---

<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
-----------	--

<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>TX</b>	(1) Green LED, indicates unit is in encoder (transmitter) mode
<b>RX</b>	(1) Green LED, indicates unit is in decoder (receiver) mode
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet link status; Amber indicates Ethernet activity
<b>Ethernet 3</b>	(2) LEDs; Green LED indicates Ethernet activity; Amber indicates Ethernet link status
<b>Ethernet 4 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 4 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>HDMI OUTPUT</b>	(1) Green LED, indicates video signal transmission at the HDMI output
<b>HDMI INPUT</b>	(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

---

15.1 oz (427 g)

## Compliance

---

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

### Notes:

1. In encoder mode, the stream type of the DM-NVX-363C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-363C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-363C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-363C decoder.
2. As an encoder, the DM-NVX-363C transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-363C does not transmit audio via the 2-channel AES67 stream when it receives multichannel audio.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. 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.
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.

7. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
8. The analog audio port can function as an input or output, not both.
9. The DM-NVX- does not down-mix Dolby Atmos MAT 2.0 audio.
10. The DM-NVX-363C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
11. USB 2.0 extension and switching over LAN may not work when directly connecting a host PC's USB-C port to a DM-NVX-36X series endpoint's USB-C port. This is a known hardware limitation. Connect the host PC's USB-A port (if available) to the DM NVX endpoint using a USB-A to USB-C cable. A USB OTG USB-C to USB-A adapter may also be used at the host PC's USB-C port, which would be connected to the DM NVX endpoint using a USB-A to USB-C cable.
12. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-363C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
13. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-363C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.



# DM-NVX-384C Specifications

Product specifications for the DM-NVX-384C are provided below.

## Product Specifications

### Encoding/Decoding

---

<b>Video Codec</b>	Encoder: Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup> ; Decoder: Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 5120x2880 @30 Hz (5K Wide) or 5120x1440 @60 Hz (5K Super-Wide); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound), secondary 2-channel LPCM <sup>2</sup>
<b>Bit Rates</b>	Encoder: Fixed (200 to 950 Mbps - user specified), <sup>3</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream); Decoder: 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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4, 5</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>6</sup> ); DisplayPort over USB-C (DisplayPort Alt Mode) with HDR10, HDR10+, and 4K60 4:4:4 support
<b>Output Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>4</sup> (DVI compatible <sup>6</sup> )
<b>Switcher</b>	4x1 in encoder mode (Two HDMI, Two USB-C), manual or auto-switching, breakaway audio, <sup>7</sup> Crestron QuickSwitch HD™ technology; 5x1 in decoder mode (HDMI, Stream), manual or auto-switching, breakaway audio, <sup>7</sup> Crestron QuickSwitch HD™ technology
<b>Scaler</b>	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion, Deep Color support, HDR10, HDR10+, and Dolby Vision support, widescreen format selection (zoom, stretch, maintain aspect ratio, or 1:1), video wall processing up to 8 wide x 8 high, static or dynamic text overlay
<b>Copy Protection</b>	HDCP 2.3
<b>Resolutions</b>	Common resolutions are listed in the following table.

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	5120×2880 5K Wide	30 Hz	4:4:4	8 bit
	5120×2160 5K Ultra-Wide	30 Hz	4:4:4	8 bit
	5120×2160 5K Ultra-Wide*	60 Hz	4:2:0	8 bit
	5120×1440 5K Super-Wide	60 Hz	4:4:4	8 bit
	4096×2160 DCI 4K and 3840×2160 4K UHD	30 Hz	4:4:4	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560×1600 WQXGA Reduced Blanking	60 Hz	4:4:4	12 bit
	2560×1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560×1080 UWFHD	60 Hz	4:4:4	8 bit
	2048×1152 QWXGA	60 Hz	4:4:4	12 bit
	2048×1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600×1200 UXGA	60 Hz	4:4:4	12 bit
1920×1200 WUXGA	60 Hz	4:4:4	12 bit	
1920×1080 FHD 1080p	60 Hz	4:4:4	12 bit	
	120 Hz	4:4:4	8 bit	
	240 Hz	4:4:4	8 bit	
Interlaced (Input Only)	1920×1080 HD 1080i	60 Hz	4:4:4	12 bit

\*5K Ultra-Wide @60 Hz 4:2:0 is supported as an unscaled pass-through resolution only.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible <sup>6</sup> ), DisplayPort over USB-C (DisplayPort Alt Mode <sup>7</sup> ), analog stereo <sup>8</sup>
<b>Output Signal Types</b>	HDMI (multichannel pass-through), analog stereo (2-channel)
<b>Digital Formats</b>	Dolby Digital <sup>®</sup> , Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS <sup>®</sup> , 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>Analog-to-Digital Conversion</b>	24-bit, 48 kHz
<b>Digital-to-Analog Conversion</b>	24-bit, 48 kHz
<b>AES67</b>	24-bit, 48 kHz

**Analog Performance** Frequency Response: 20 Hz to 20 kHz  $\pm 0.5$  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** Auto-switching, auto-negotiating, autodiscovery, 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 host or device signal extension and routing, Layer 2 or Layer 3

**HDMI** HDCP 2.3, EDID, CEC

**USB-C (DisplayPort Alt Mode)** HDCP 2.3, EDID, CEC, USB 2.0

**DM NVX AV-over-IP (via Ethernet)** HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

**USB2 TO DEVICE** (1) USB Type-A connector, female;  
USB 2.0 device port;  
USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device;<sup>9</sup>  
Available Power: 500mA at 5 VDC

**HID TO DEVICE** (1) USB Type-A connector, female;  
USB 2.0 host port;  
USB signal extender port for connection to a USB HID compliant mouse, keyboard, or other USB HID compliant device;<sup>9</sup>  
Available Power: 500 mA at 5VDC

**Ethernet 1** (1) 8-pin RJ-45 connector, female;  
100BASE-TX/1000BASE-T Ethernet port;<sup>10</sup>

**Ethernet 2** (1) 8-pin RJ-45 connector, female;  
100BASE-TX/1000BASE-T Ethernet port<sup>10</sup>

**Ethernet 3** (1) SFP port;  
Accepts one Crestron SFP-1G Series transceiver module<sup>11</sup>

**HDMI OUT (eARC)** (1) HDMI Type A connector, female;  
HDMI digital video/audio output<sup>4</sup> (DVI compatible<sup>6</sup>)

**NOTE:** eARC connectivity will be enabled in a future firmware update.

**HDMI IN 1** (1) HDMI Type-A connector, female;  
HDMI digital video/audio input;<sup>4</sup>  
(DVI and Dual-Mode DisplayPort interface compatible<sup>6</sup>)

HDMI IN 2 (eARC)	(1) HDMI Type-A connector, female; HDMI digital video/audio input; <sup>4</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>6</sup> );
<p><b>NOTE:</b> eARC connectivity will be enabled in a future firmware update.</p>	
TO HOST DP-S USB2 (IN 3-4)	(2) USB Type-C <sup>®</sup> connectors, female; USB 2.0 host ports; USB signal extender ports for connection to a computer or other USB 2.0 host; DisplayPort single stream video inputs <sup>7</sup>
AUDIO I/O	(1) 3-pin 3.5 mm detachable terminal block; Unbalanced stereo line-level audio input or output; <sup>8</sup> Input Impedance: 24 k $\Omega$ ; Maximum Input Level: 2V <sub>rms</sub> ; Output Impedance: 100 $\Omega$ ; Maximum Output Level: 2V <sub>rms</sub>

## Controls and Indicators

---

OL	(1) Green LED, indicates an online connection to a control system via Ethernet
TX	(1) Green LED, indicates unit is in encoder (transmitter) mode
RX	(1) Green LED, indicates unit is in decoder (receiver) mode
Ethernet 1-3	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
HDMI OUT	(1) Green LED, indicates video signal transmission at the HDMI output
HDMI IN 1-2	(2) Green LEDs, each indicates sync detection at the corresponding HDMI input

## Environmental

---

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (noncondensing)

## Construction

---

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

## Weight

---

1.2 lb (0.54 kg)

## Compliance

---

### Regulatory Model: M202234002

FCC Part 15 Class B, IC Class B, CE, Intertek<sup>®</sup> Listed for US and Canada

Notes:

1. In encoder mode, the stream type of the DM-NVX-384C must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-384C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.  
  
In decoder mode, the proper stream type of the DM-NVX-384C is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the DM-NVX-363 decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the DM-NVX-384C decoder.
2. As an encoder, the DM-NVX-384C transmits audio via the 2-channel AES67 stream when it receives a 2-channel stereo input signal via the HDMI or analog input. The DM-NVX-384 does not transmit audio via the secondary 2-channel stream when it receives multichannel audio.
3. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
4. 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.
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.
7. USB-C connections require USB-C cables that support DisplayPort Alt Mode video in order to pass video signal. Not all USB-C cables can support DisplayPort Alt Mode video.
8. The analog audio port can function as an input or output—not both. Audio from one onboard HDMI input cannot be combined with video from the other onboard HDMI input. Combining audio from one encoder with video from another encoder is possible using the 2-channel AES67 audio stream only. Multichannel audio from one encoder cannot be combined with video from another encoder.
9. The DM-NVX-384C can be configured to accept the connection of a USB device or a USB host, not both. Crestron DM NVX products are engineered to deliver maximum compatibility with the widest possible range of USB products. Crestron does not guarantee that all USB products are compatible with DM NVX products. Refer to [AV-over-IP Network Design on page 628](#) for USB bandwidth considerations.
10. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.  
  
A nonblocking network is required for DM NVX devices.
11. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-384C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.

# DM-NVX-D30C Specifications

Product specifications for the DM-NVX-D30C are provided below.

## Product Specifications

### Decoding

<b>Stream Type</b>	Pixel Perfect Processing or DM-NVX-E10/E20 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color 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 <sup>2</sup>
<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 HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>3</sup> (DVI compatible <sup>4</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
		120 Hz	4:4:4	8 bit
240 Hz		4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

---

<b>Output Signal Types</b>	HDMI, analog stereo <sup>5</sup>
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 computer console (for setup)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>Ethernet</b>	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>6</sup>
<b>HDMI OUTPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio output (DVI compatible <sup>4</sup> )
<b>AUDIO</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input; <sup>5</sup> Output Impedance: 200 Ω balanced, 100 Ω unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)

## Controls and Indicators

---

<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
-----------	--

<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<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

## 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 and Canada, CE, IC, FCC Part 15 Class B digital device

### Notes:

1. For a DM NVX 4K60 4:4:4 decoder, the proper stream type is automatically used. For interoperability with DM NVX 4K60 4:4:4 encoders, Pixel Perfect Processing is automatically used as the stream type of the decoder. For interoperability with DM-NVX-E10/E20 Series encoders, DM-NVX-E10/E20 Series is automatically used as the stream type of the decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.
4. 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.
5. The analog audio output is functional only when the DM-NVX-D30C is receiving a 2-channel stereo input signal.
6. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.



# DM-NVX-E30C Specifications

Product specifications for the DM-NVX-E30C are provided below.

## Product Specifications

### Encoding

---

<b>Stream Type</b>	Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, HDR10+, Dolby Vision, and Deep Color support
<b>Audio Formats</b>	Multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
<b>Bit Rates</b>	Fixed (200 to 950 Mbps - user specified), <sup>2</sup> Adaptive (dependent on input resolution of the stream), or Variable (less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream)
<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>Input Signal Types</b>	HDMI with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>3, 4</sup> (Dual-Mode DisplayPort™ interface and DVI compatible <sup>5</sup> )
<b>Copy Protection</b>	HDCP 2.3
<b>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	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
	1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit
120 Hz		4:4:4	8 bit	
240 Hz		4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTE:** The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.

## Audio

<b>Input Signal Types</b>	HDMI (Dual-Mode DisplayPort interface compatible5)
<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: <0.005% @ 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, 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>USB</b>	USB 2.0 computer console (for setup)
<b>HDMI</b>	HDCP 2.3, EDID, CEC
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

## Connectors

---

<b>Ethernet</b>	(2) 8-pin RJ-45 connectors, female; 100BASE-TX/1000BASE-T Ethernet port <sup>6</sup>
<b>HDMI INPUT</b>	(1) HDMI Type A connector, female; HDMI digital video/audio input; <sup>3</sup> (DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup> )
<b>AUDIO</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio input; <sup>7</sup> Output Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)

## Controls and Indicators

---

<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) or decoding (receiving) network video
<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>Ethernet</b>	(2) LEDs; Green indicates Ethernet link status; Amber indicates Ethernet activity
<b>HDMI INPUT</b>	(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 and Canada, CE, IC, FCC Part 15 Class B digital device

Notes:

1. The stream type of a DM NVX 4K60 4:4:4 encoder must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM NVX 4K60 4:4:4 encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. 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.

4. 3D formats are not supported.
5. 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.
6. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. The Ethernet port cannot be connected to the DM® ports of other Crestron devices.  
A nonblocking network is required for DM NVX devices.
7. The analog audio output is functional only when the DM-NVX-E30C is receiving a 2-channel stereo input signal.

# DM-NVX-E760C Specifications

Product specifications for the DM-NVX-E760C are provided below.

## Product Specifications

### Encoding

<b>Stream Type</b>	Pixel Perfect Processing (default) or DM-NVX-D10/D20/D200 Series <sup>1</sup>
<b>Video Resolutions</b>	Up to 4096x2160@60Hz (DCI 4K60); 4:4:4 color sampling; HDR10, and Deep Color support
<b>Audio Formats</b>	Primary multichannel (up to 8-channel LPCM or encoded HBR 7.1 surround sound)
<b>Bit Rates</b>	Fixed: 200 to 950 Mbps - user specified, <sup>2</sup> Adaptive: dependent on input resolution of the stream), or Variable: less than 150 Mbps to maximum of 750 Mbps, dependent on content and input resolution of the stream
<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 <sup>3</sup> , AES-128, PKI

### Video

<b>Input Signal Types</b>	DM 8G+ and HDBaseT with HDR10, Deep Color, and 4K60 4:4:4 support; DM Essentials with 4K60 4:2:0 support <sup>4</sup>
<b>Copy Protection</b>	HDCP 2.3 <sup>3</sup>
<b>Resolutions</b>	Common resolutions are listed in the following table. <sup>5</sup>

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K and 3840x2160 4K UHD	30 Hz	4:4:4	12 bit
		60 Hz	4:2:0	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA Reduced Blanking	60 Hz	4:4:4	8 bit
	2560x1440 WQHD Reduced Blanking	60 Hz	4:4:4	8 bit
		120 Hz	4:4:4	8 bit
	2560x1080 UWFHD	60 Hz	4:4:4	8 bit
	2048x1152 QWXGA	60 Hz	4:4:4	12 bit
	2048x1080 DCI 2K	60 Hz	4:4:4	12 bit
	1600x1200 UXGA	60 Hz	4:4:4	12 bit
	1920x1200 WUXGA	60 Hz	4:4:4	12 bit
1920x1080 FHD 1080p	60 Hz	4:4:4	12 bit	
	120 Hz	4:4:4	8 bit	
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

**NOTES:**

- The maximum supported resolution is 4096x2160 at 60 Hz with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- 1920x1080 FHD 1080p at 120 Hz and 240 Hz are not supported due to HDBaseT limitations.

**Audio**

<b>Input Signal Types</b>	DM 8G+, HDBaseT, DM Essentials
<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 $\pm$ 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
<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, 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>DigitalMedia™</b>	DM 8G+, DM Essentials, HDCP 2.3 <sup>3</sup> , EDID, PoDM+
<b>HDBaseT</b>	HDCP 2.3, EDID, PoE+
<b>USB</b>	USB 2.0 computer console (for setup)
<b>DM NVX AV-over-IP (via Ethernet)</b>	HDCP 2.3, AES-128 AV content encryption with PKI authentication, RTP, secure RTSP, SDP, ONVIF, IGMPv2, IGMPv3, SMPTE 2022, FEC (Forward Error Correction)

**Connectors**

<b>Ethernet 1</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port; <sup>6</sup>
<b>Ethernet 2</b>	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port <sup>6</sup>
<b>Ethernet 3</b>	(1) SFP port; Accepts one Crestron SFP-1G Series transceiver module <sup>7</sup>

<b>DM INPUT</b>	(1) 8-pin RJ-45 connector, female, shielded; DM 8G+ (HDBaseT standard compliant) or DM Essentials input; PoDM+ (HDBaseT PoE+ compatible) PSE (power sourcing equipment) port or DM Essentials power port; <sup>8</sup> Connects to the DM 8G+ output of a DM switcher, transmitter or other DM device, to the DM Essentials port of a DM Essentials transmitter, or to an HDBaseT device via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable <sup>9</sup>
<b>AUDIO OUT</b>	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; <sup>10</sup> Impedance: 200 $\Omega$ balanced, 100 $\Omega$ unbalanced; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced
<b>CONSOLE, USB</b>	(1) Micro USB connector, female; USB 2.0 computer console port (for setup)

## Controls and Indicators

---

<b>OL</b>	(1) Green LED, indicates an online connection to a control system via Ethernet
<b>NV</b>	(1) Green LED, indicates unit is encoding (transmitting) network video
<b>Ethernet 1-2</b>	(2) LEDs per port; Green indicates Ethernet links status; Amber indicates Ethernet activity
<b>Ethernet 3 LNK</b>	(1) Green LED, indicates Ethernet link status
<b>Ethernet 3 ACT</b>	(1) Green LED, indicates Ethernet activity
<b>DM INPUT</b>	(2) LEDs; Green indicates DM link status; Amber indicates video and HDCP signal presence

## Construction

---

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

## Weight

---

15.1 oz(427 g)

## Compliance

---

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

### Notes:

1. The stream type of a DM NVX 4K60 4:4:4 encoder must be set by using the web interface or a control system. The default setting is Pixel Perfect Processing for interoperability with DM NVX 4K60 4:4:4 decoders. For interoperability with a DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder, the stream type of the DM-NVX-E760C encoder must be set to DM-NVX-D10/D20/D200 Series. In addition, the resolution of the encoder must be set so that it does not exceed the maximum resolution of the DM-NVX-D10, DM-NVX-D20, or DM-NVX-D200 decoder.
2. The minimum bit rate for 4K60 video is 350 Mbps. A bit rate below 350 Mbps may display a black screen.
3. The DM-NVX-E760C supports HDCP 2.3. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for the HDCP version supported by those devices.
4. 3D formats are not supported.
5. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for information about the maximum resolution supported by those devices.

6. The minimum cable required for DM NVX over 1000BASE-T Ethernet (copper) is unshielded CAT5e. All Ethernet ports on the DM-NVX-E760C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM® ports of other Crestron devices.

A nonblocking network is required for DM NVX devices.

7. Use of the SFP port requires the purchase of a Crestron [SFP-1G](#) Series transceiver module (sold separately). All Ethernet ports on the DM-NVX-E760C are for connection to an Ethernet network or device. The Ethernet ports cannot be connected to the DM ports of other Crestron DigitalMedia devices.
8. The DM INPUT port can be used to power DM 8G+ and DM Essentials transmitters only when those devices are not connected to a 24VDC power pack.

Wiring that connects to a PoDM+ or HDBaseT PoE+ PSE port or to a DM Essentials port is designed for intrabuilding use only.

9. Refer to the product page of the DM 8G+ output device or DM Essentials transmitter for cable length information.
10. The analog audio output is functional only when the DM-NVX-E760C is receiving a 2-channel stereo input signal.



# Installation

Refer to the following sections for installation instructions for these DM NVX devices:

- [DM-NVX-350, DM-NVX-351, and DM-NVX-352 Installation](#)
- [DM-NVX-360 and DM-NVX-363 Installation](#)
- [DM-NVX-384 Installation](#)
- [DM-NVX-D10, DM-NVX-D20, DM-NVX-E10, and DM-NVX-E20 Installation](#)
- [DM-NVX-D200 Installation](#)
- [DM-NVX-E20-2G Installation](#)
- [DM-NVX-D30 and DM-NVX-E30 Installation](#)
- [DM-NVX-E760 Installation](#)
- [Card Installation](#)

# DM-NVX-350, DM-NVX-351, and DM-NVX-352 Installation

Refer to the following sections to install the DM-NVX-350, DM-NVX-351, and DM-NVX-352.

**NOTE:** This topic covers the installation of the room box models only. Refer to [Card Installation on page 316](#) for instructions on installing the DM-NVX-350C, DM-NVX-351C, and DM-NVX-352C.

- [In the Box on page 262](#)
- [Mount the Device on page 263](#)
- [Connect the Device on page 265](#)
- [Observe the LED Indicators on page 268](#)
- [Reset the Device on page 269](#)

## In the Box

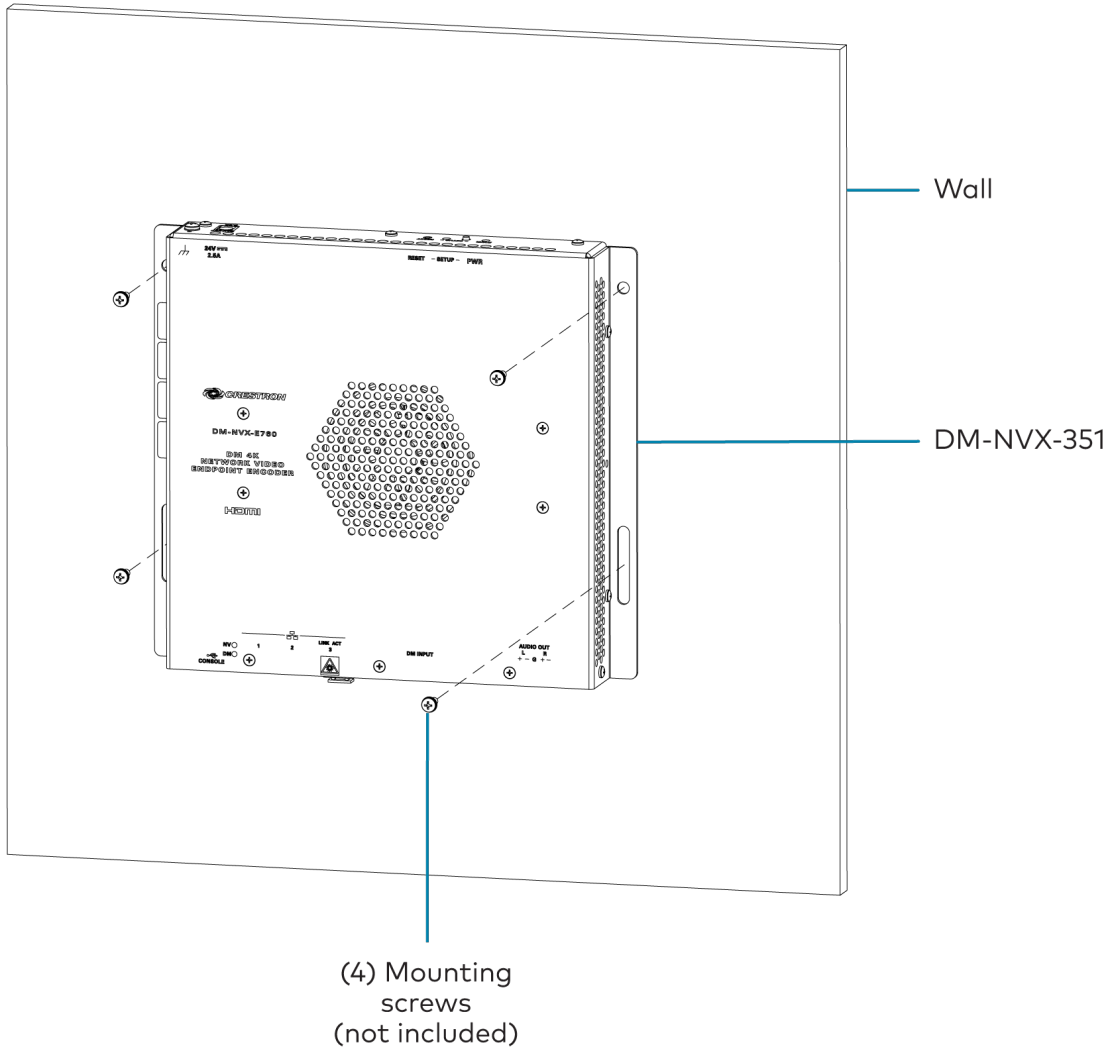
Qty.	Description
1	DM-NVX-350, DM-NVX-351, or DM-NVX-352 Network AV Encoder/Decoder
<b>Additional Items</b>	
1	Power pack, 24VDC, 2.5A, 100-240VAC (2045873)
2	Power cord, 5 ft 10 in. (1.78 m) (2042043)
1	Connector, 4-pin (2003576)
2	Connector, 5-pin (2003577)

# Mount the Device

The DM NVX device can be mounted onto a flat surface or rack rail.

## Mount to a Surface

Using four surface-appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table.

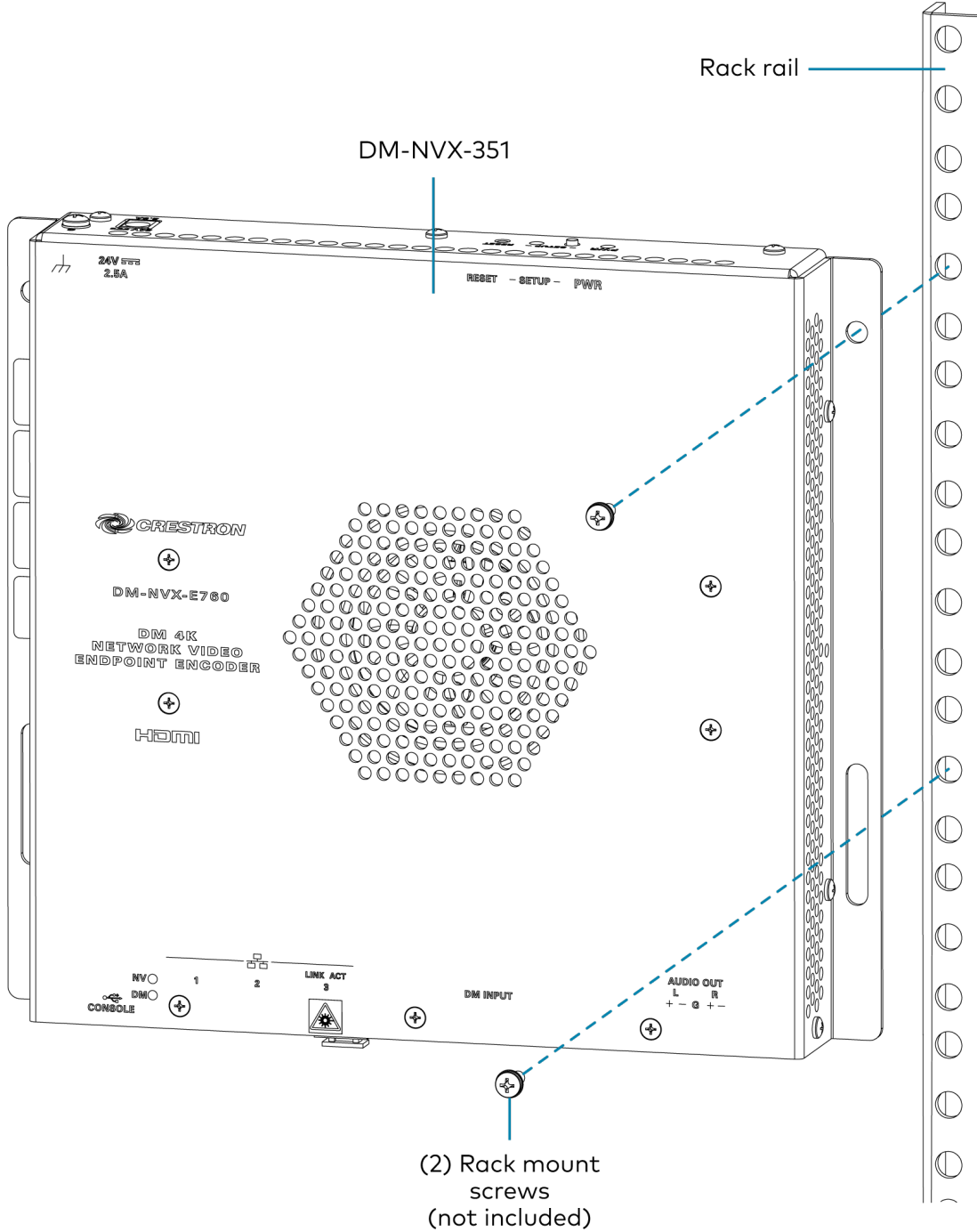


**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

1. Position either the left or right mounting flange so that the holes align with the holes in the rack rail.
2. Secure the device to the rack rail using two rack screws (not included).



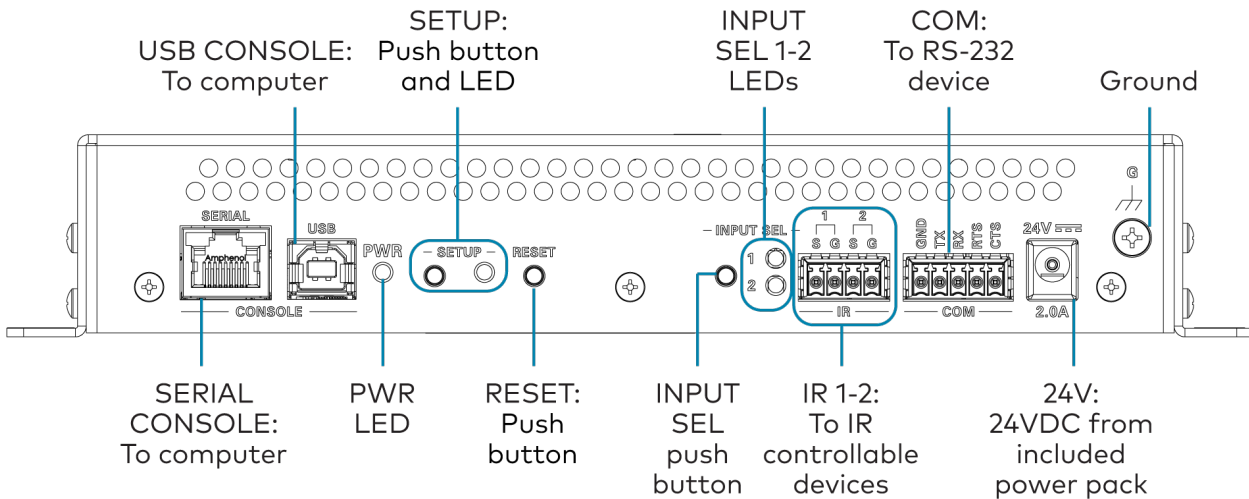
# Connect the Device

Connect the device as shown in the following illustrations.

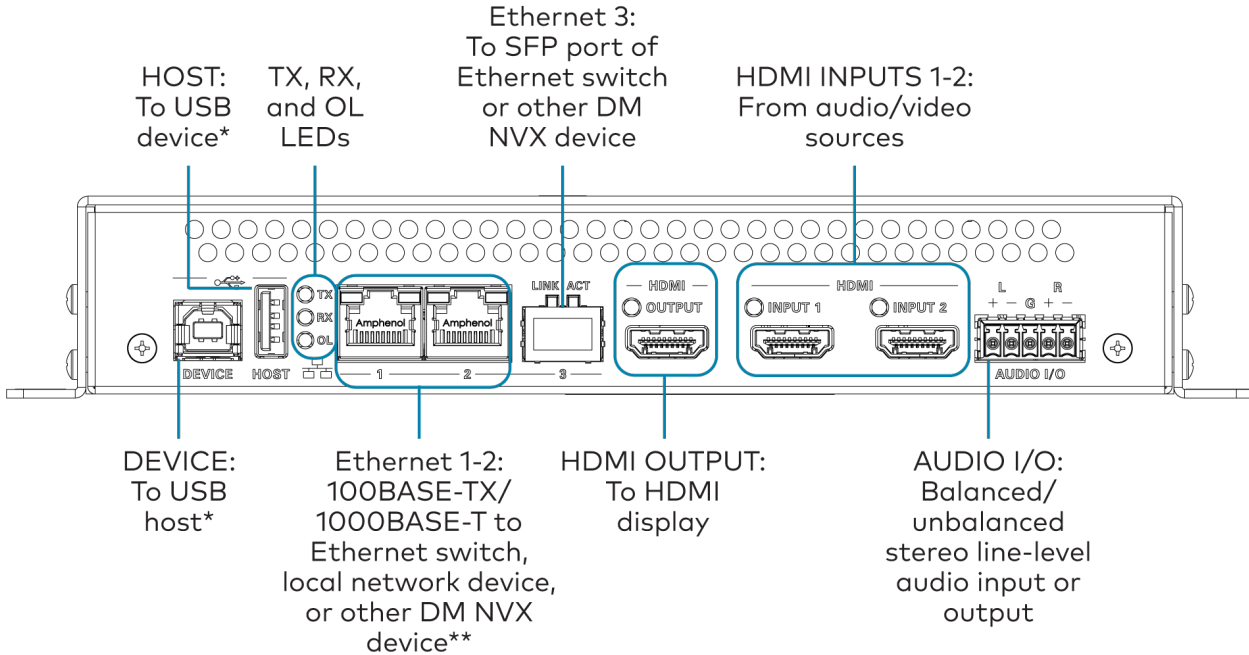
## NOTES:

- The device provides multiple Ethernet ports.
  - The DM-NVX-350 and DM-NVX-351 each provide three LAN ports. LAN ports 1 and 2 are 100BASE-TX/1000BASE-T ports. LAN port 3 is an SFP port.
  - The DM-NVX-352 provides two LAN ports. LAN port 1 is a 100BASE-TX/1000BASE-T port LAN port 2 is an SFP port.
  - An SFP port connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - Only one LAN port at a time can be used as the primary LAN connection to a 1000BASE-T switch in order to stream network video. Any other LAN port can then be used for connection to a local network device or to another DM NVX device.
  - The DM NVX device can be powered by the included [PW-2420RU](#) power pack or over the LAN via LAN port 1, which is a powered device(PD) port. In order to receive power over the LAN, LAN port 1 must connect to PoE++ power sourcing equipment (PSE) such as a PoE++ compliant Ethernet switch or IEEE 802.3bt compliant injector. Do not connect both types of power simultaneously.

## Top Panel



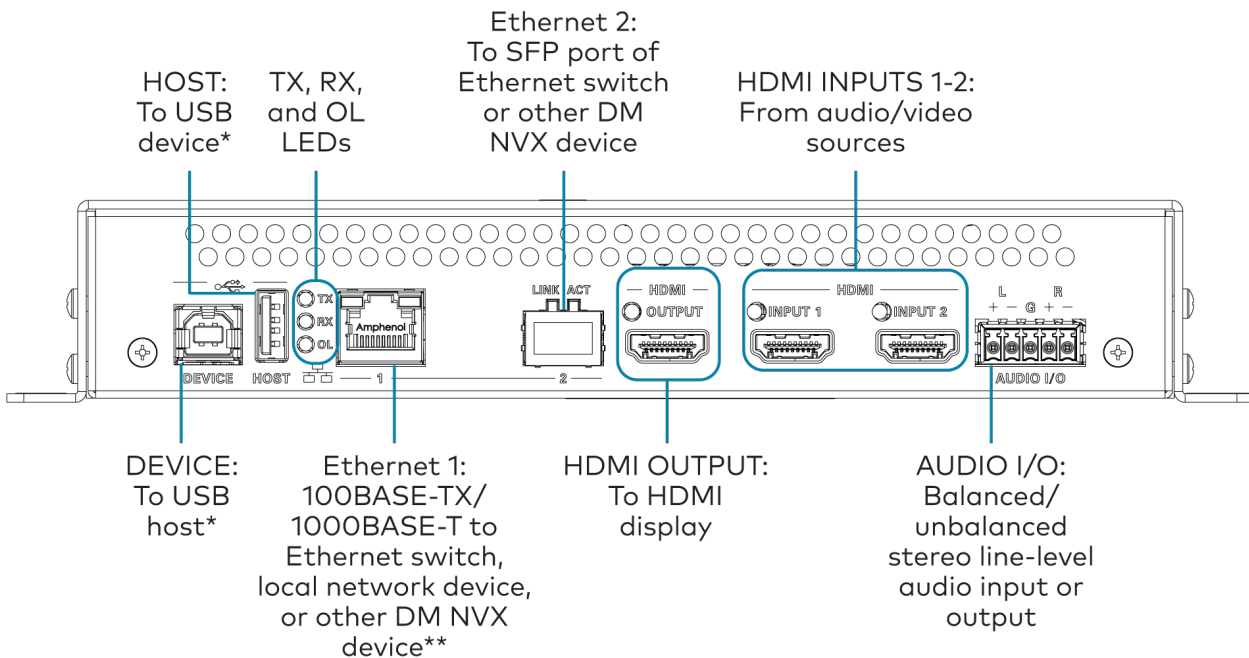
**Bottom Panel - DM-NVX-350 and DM-NVX-351**



\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

\*\*Ethernet port 1 is a PoE++ powered device port.

**Bottom Panel - DM-NVX-352**



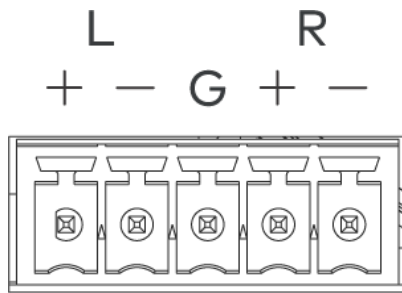
\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

\*\*Ethernet port 1 is a PoE++ powered device port.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio input or output.

### AUDIO Connector

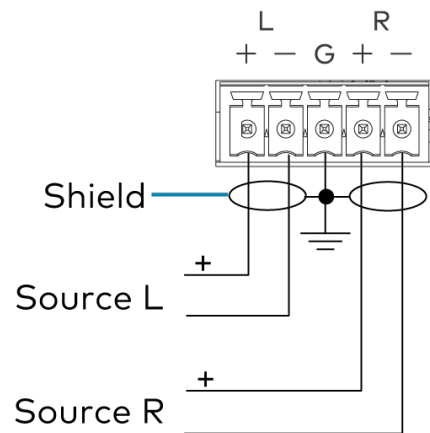


### Balanced/Unbalanced Audio Input

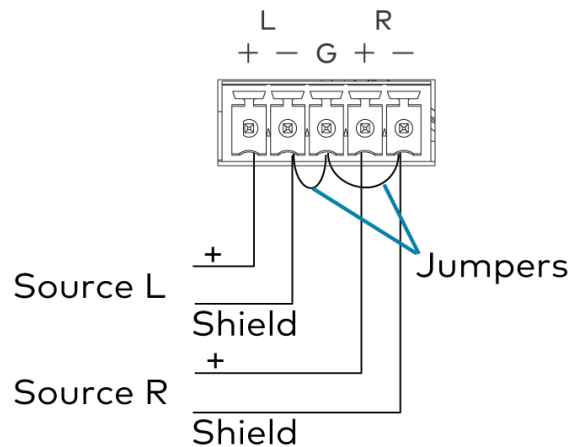
Refer to the following table and diagrams for balanced and unbalanced input pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ In
-	L-	L- Signal return, jumper to G
G	Shield/ground	Ground
+	R+	R+ In
-	R-	R- Signal return, jumper to G

### Balanced Input



### Unbalanced Input

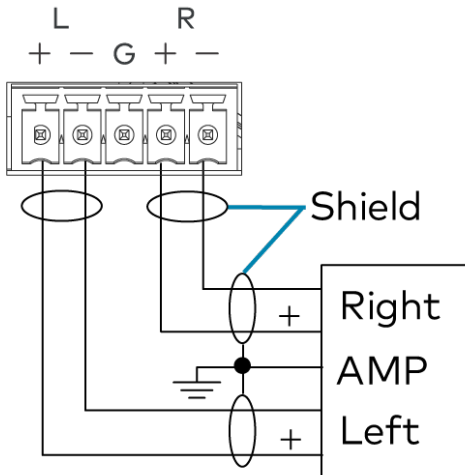


### Balanced/Unbalanced Audio Output

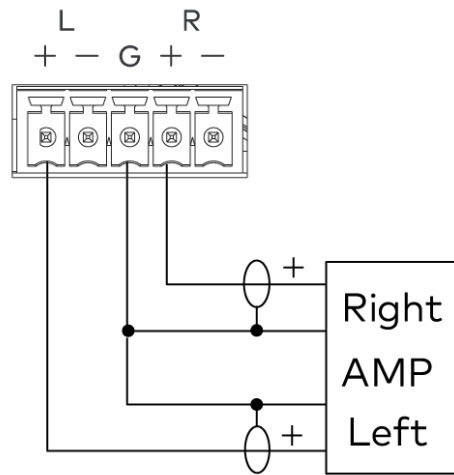
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

### Balanced Output



### Unbalanced Output



## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
INPUT SEL 1-2	Green	The corresponding input is selected.
	Amber	The corresponding input is detected, but is not selected.
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
OL	Green	The device is online with a control system.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.



LED Indicator	Color	Meaning
Ethernet 2 (350 and 351 only)	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2 LINK (352 only)	Green	An Ethernet link is established.
Ethernet 2 ACT (352 only)	Flashing green	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK (350 and 351 only)	Green	An Ethernet link is established.
Ethernet 3 ACT (350 and 351 only)	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUT	Green	A video signal is being transmitted to the HDMI output.
HDMI INPUT 1-2	Green	A video signal is detected at the corresponding HDMI input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# DM-NVX-360 and DM-NVX-363 Installation

Refer to the following sections to install the DM-NVX-360 and DM-NVX-363.

**NOTE:** This topic covers the installation of the room box models only. Refer to [Card Installation on page 316](#) for instructions on installing the DM-NVX-360C and DM-NVX-363C.

- [In the Box on page 270](#)
- [Mount the Device on page 271](#)
- [Connect the Device on page 273](#)
- [Observe the LED Indicators on page 276](#)
- [Reset the Device on page 276](#)

## In the Box

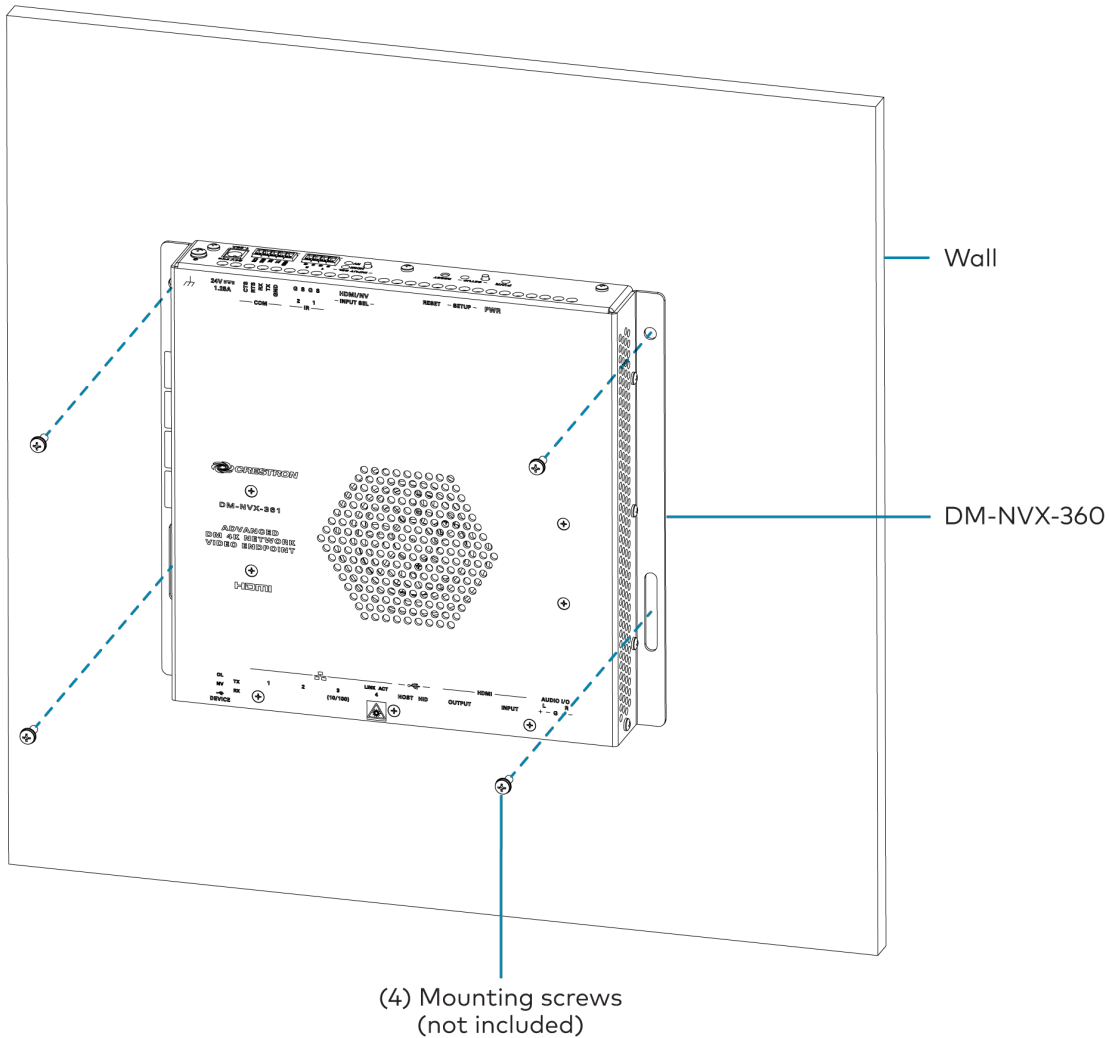
Qty.	Description
1	DM-NVX-360 or DM-NVX-363 Network AV Encoder/Decoder
<b>Additional Items</b>	
1	Connector, 4-pin (2003576)
2	Connector, 5-pin (2003577)

# Mount the Device

The DM NVX device can be mounted onto a flat surface or rack rail.

## Mount to a Surface

Using four surface-appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table.

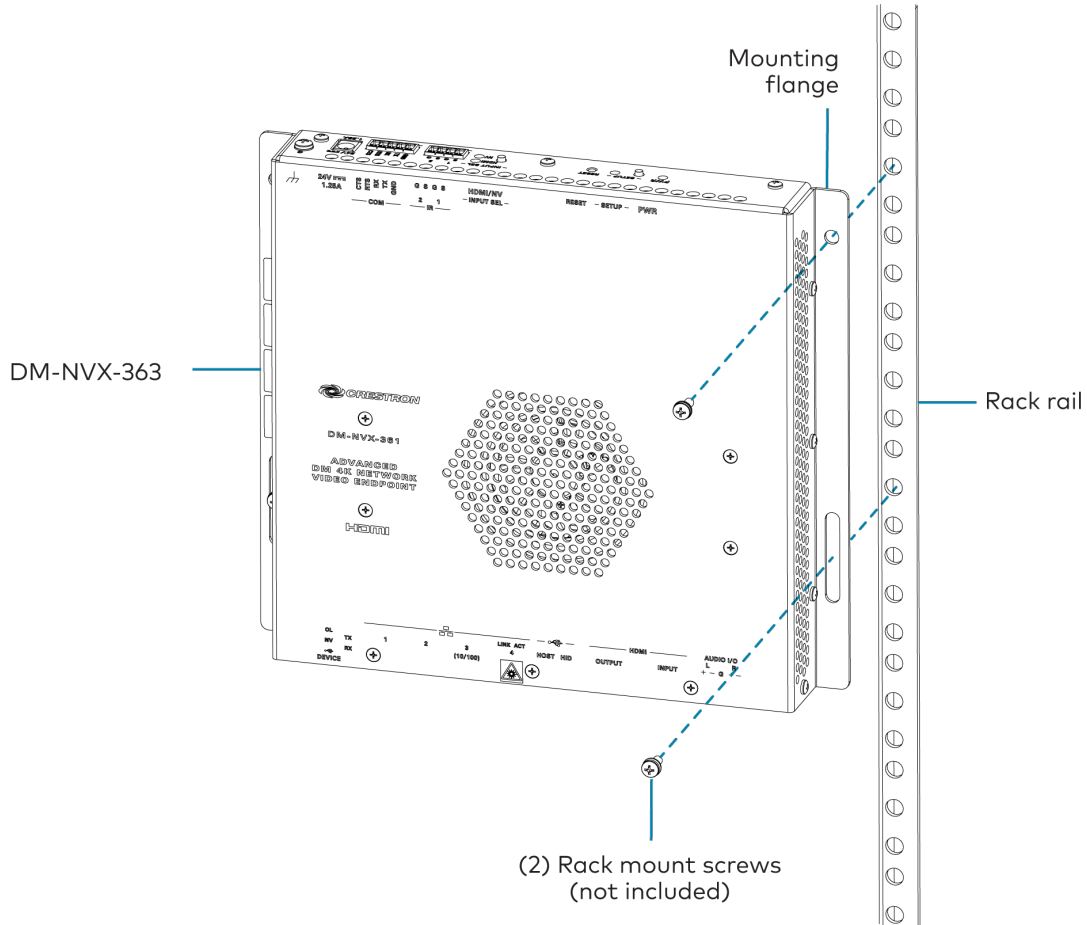


**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

1. Position either the left or right mounting flange so that the holes align with the holes in the rack rail.
2. Secure the device to the rack rail using two rack screws (not included).



# Connect the Device

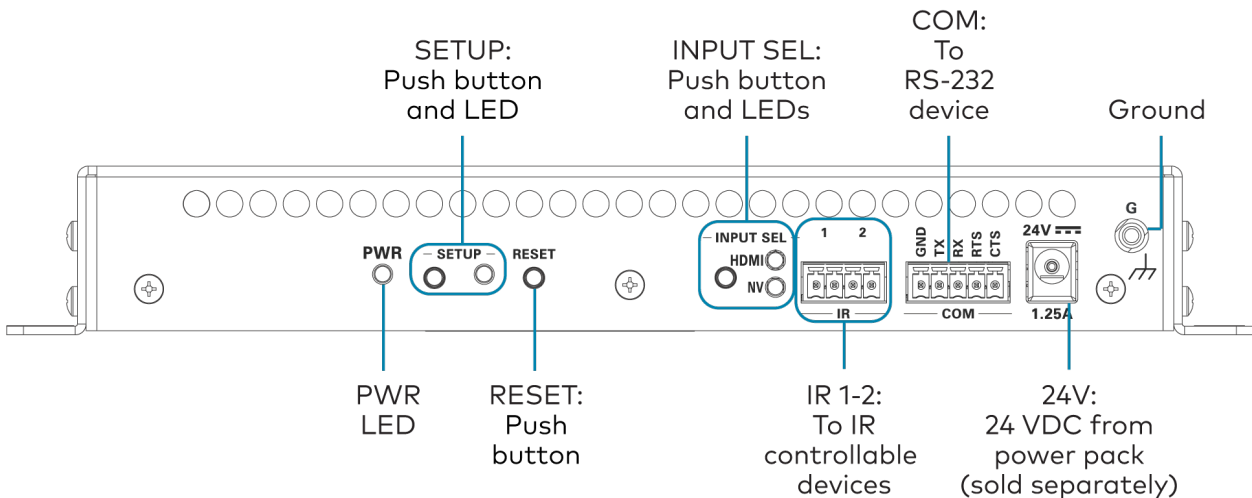
Connect the device as shown in the following illustrations.

## NOTES:

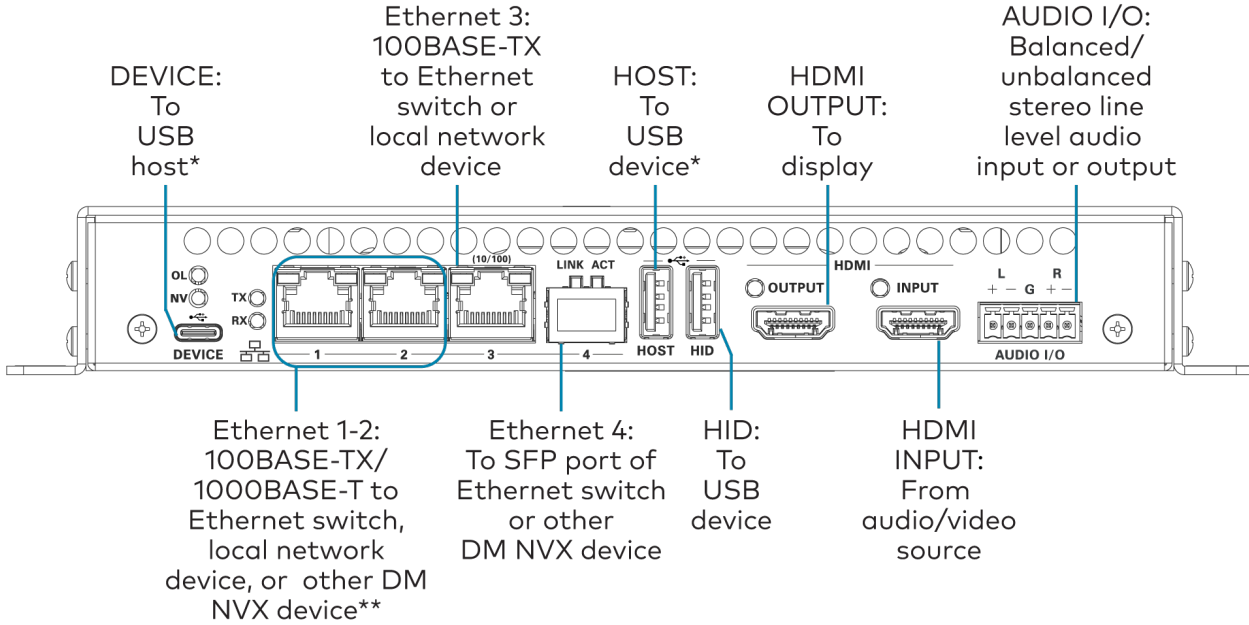
- The DM-NVX-360 and DM-NVX-363 each provide four Ethernet ports.
  - Ethernet port 1 is a 100BASE-TX/1000BASE-T port and a PoE+ powered device (PD) port. In order for the port to receive PoE+, it must be connected to PoE+ power sourcing equipment (PSE) such as a PoE++ compliant Ethernet switch or IEEE 802.3bt compliant injector.

PoE++ or the optional [PW-2412WU](#) power pack can be used to power the device. Do not connect both types of power simultaneously.
  - Ethernet port 2 is a 100BASE-TX/1000BASE-T port.
  - Ethernet port 3 is a 100BASE-TX port that can be used to connect to a dedicated audio network or to a local network device.
  - Ethernet port 4 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - Ethernet ports 1, 2, and 4 can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

## Top Panel



## Bottom Panel



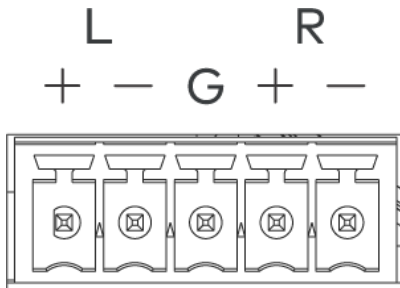
\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

\*\*Ethernet port 1 is a PoE+ powered device port.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio input or output.

### AUDIO Connector

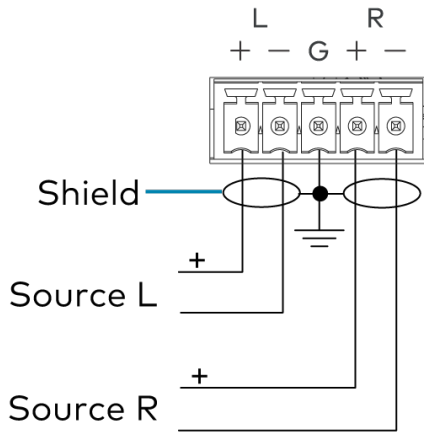


### Balanced/Unbalanced Audio Input

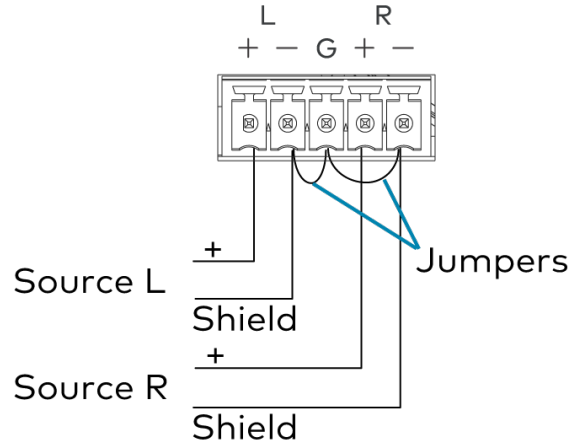
Refer to the following table and diagrams for balanced and unbalanced input pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ In
-	L-	L- Signal return, jumper to G
G	Shield/ground	Ground
+	R+	R+ In
-	R-	R- Signal return, jumper to G

## Balanced Input



## Unbalanced Input

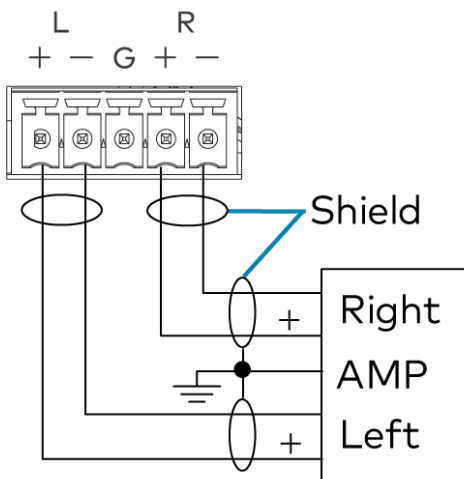


## Balanced/Unbalanced Audio Output

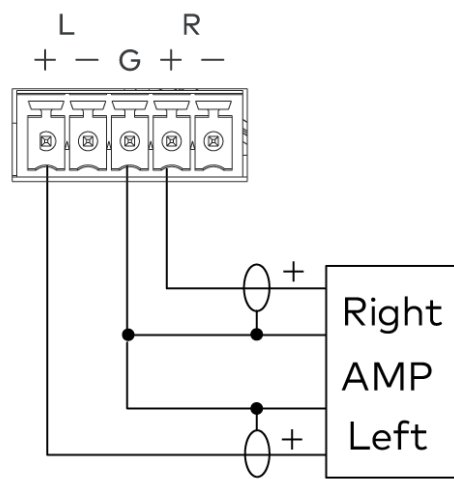
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

## Balanced Output



## Unbalanced Output



## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
INPUT SEL, HDMI	Green	The HDMI input is selected.
	Amber	An HDMI input is detected, but the HDMI input is not selected.
INPUT SEL, NV	Green	The NV (network video) input is selected.
	Amber	Network video is detected, but the NV input is not selected.
OL	Green	The device is online with a control system.
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
NV	Green	(Transmitter mode only) The device is encoding (transmitting) network video.
		(Receiver mode only) The device is decoding (receiving) network video.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3	Green	An Ethernet link is established.
	Flashing green	Data activity is occurring on the Ethernet link.
	Flashing amber	A 100BASE-TX link is established.
Ethernet 4 LINK	Green	An Ethernet link is established.
Ethernet 4 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUTPUT	Green	A video signal is being transmitted to the HDMI output.
HDMI INPUT	Green	A video signal is detected at the corresponding HDMI input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.



**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# DM-NVX-384 Installation

Refer to the following sections to install the DM-NVX-384.

**NOTE:** This topic covers the installation of the room box models only. Refer to [Card Installation on page 316](#) for instructions on installing the DM-NVX-384C.

- [In the Box on page 278](#)
- [Mount the Device on page 279](#)
- [Connect the Device on page 281](#)
- [Observe the LED Indicators on page 283](#)
- [Reset the Device on page 284](#)

## In the Box

Qty.	Description
1	DM-NVX-384 Network AV Encoder/Decoder
<b>Additional Items</b>	
4	Screw, 04-40 1/4 in. steel, black, pan-head Phillips (2007158)
2	Metal mounting bracket (2057347)
1	Connector, 3-pin (2058278)
1	Connector, 4-pin (2003576)
1	Connector, 5-pin (2003577)

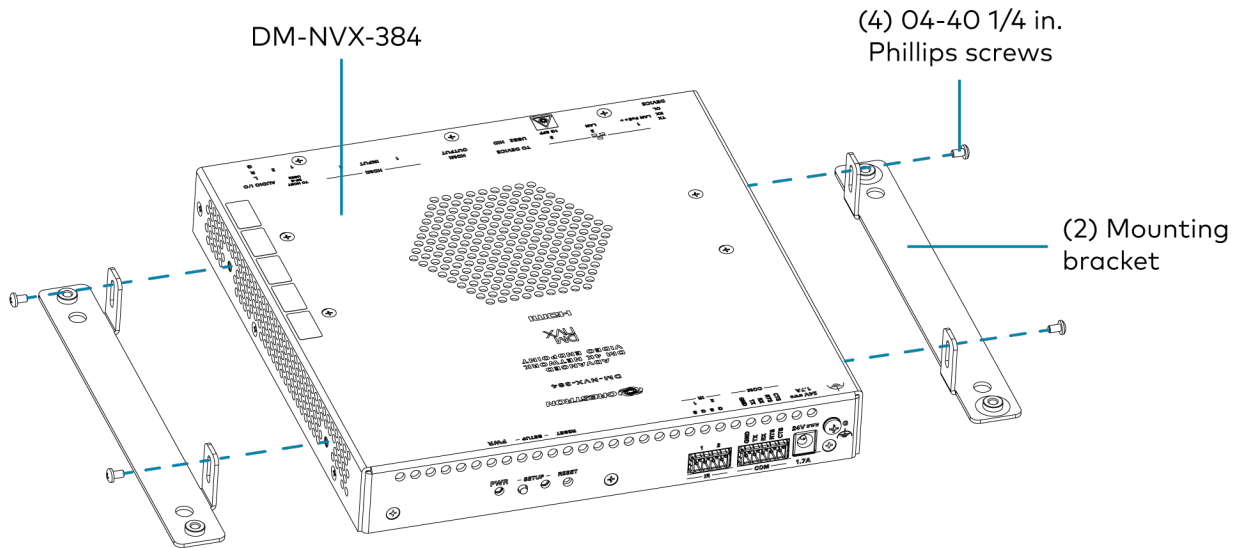
# Mount the Device

The DM-NVX-384 can be mounted onto a flat surface or rack rail.

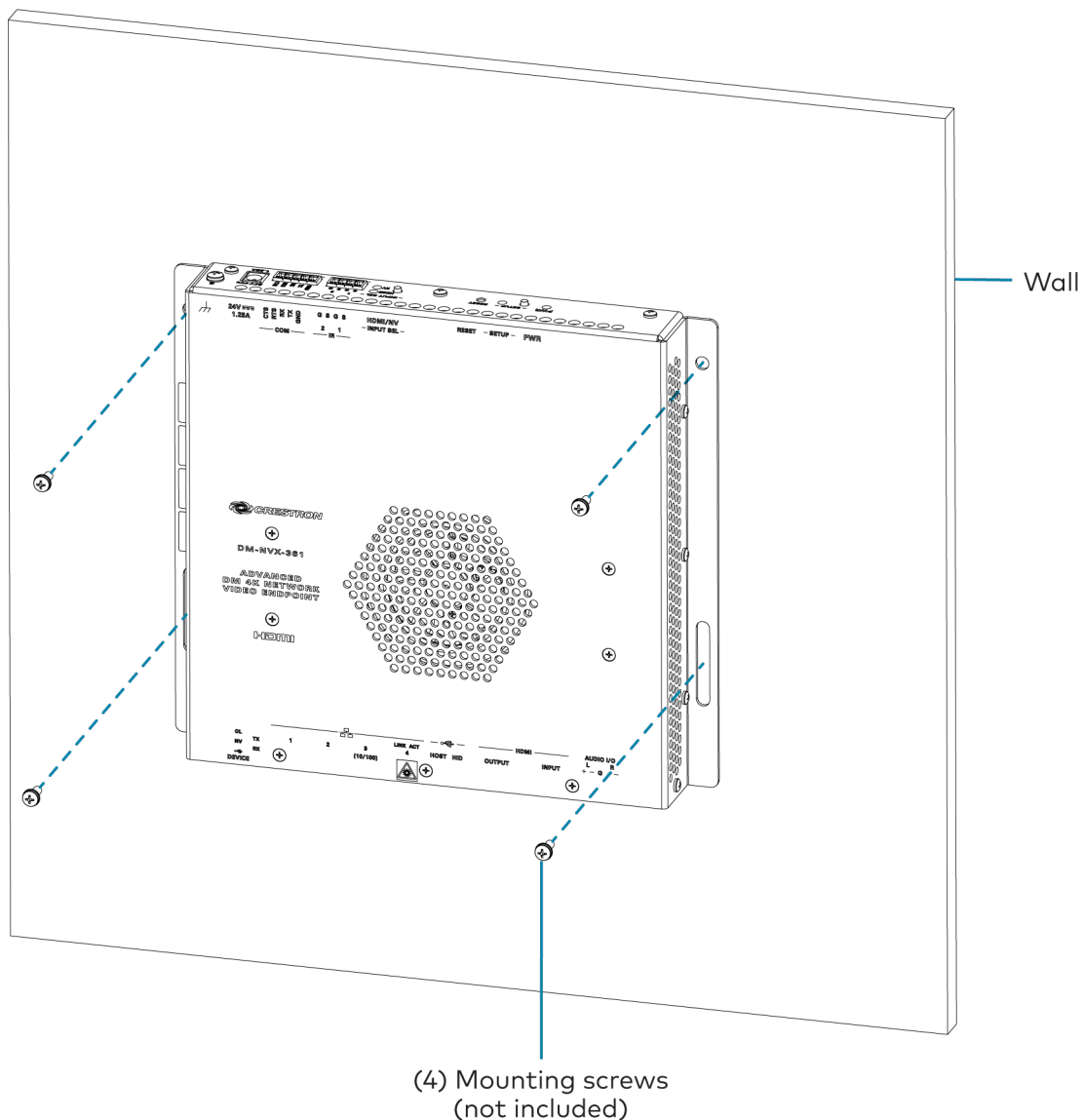
## Mount to a Surface

To mount the DM-NVX-384 to a surface:

1. Use the four included 04-40 1/4 in. Phillips head screws to attach the two included mounting brackets to the sides of the device. Position the bracket so the flange of the bracket aligns with the rear panel of the device.



- Using four appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table.



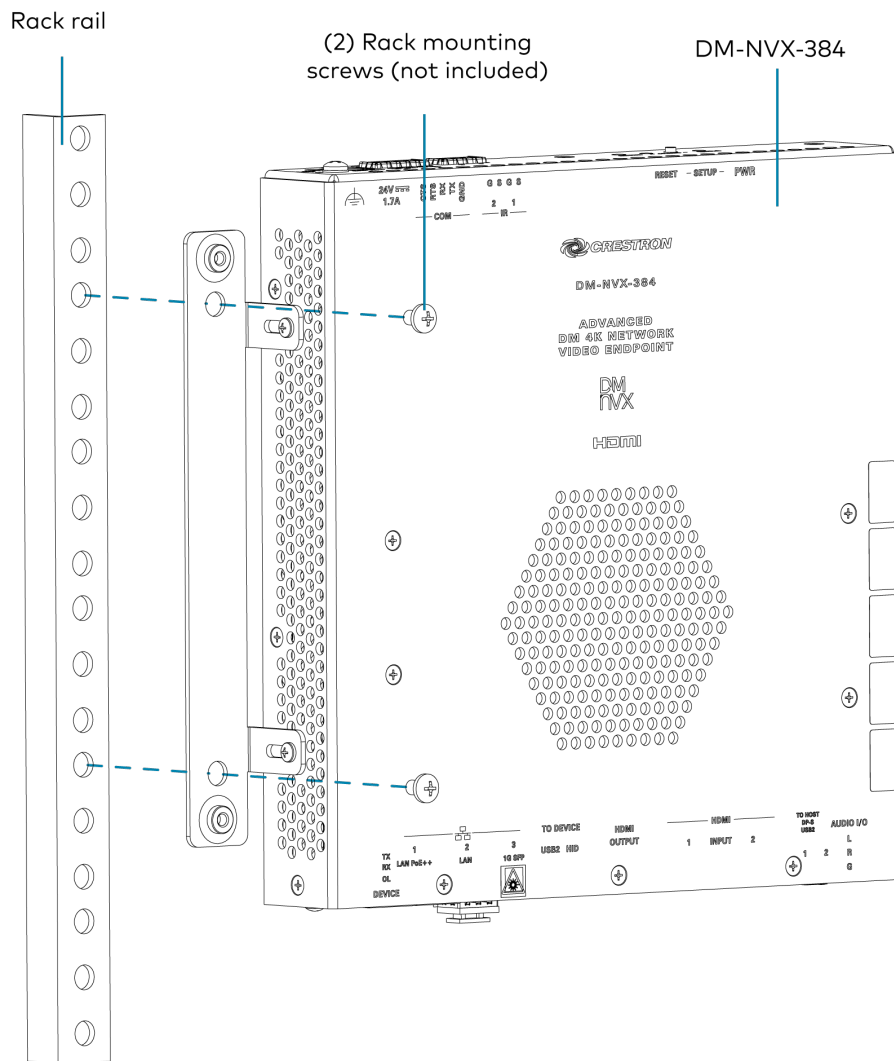
**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

- Use two of the included 04-40 1/4 in. Phillips head screws to attach one of the included mounting brackets to a side panel of the device.
- Position the mounting bracket so that the holes align with the holes in the rack rail.

3. Secure the device to the rack rail using two rack screws (not included).



## Connect the Device

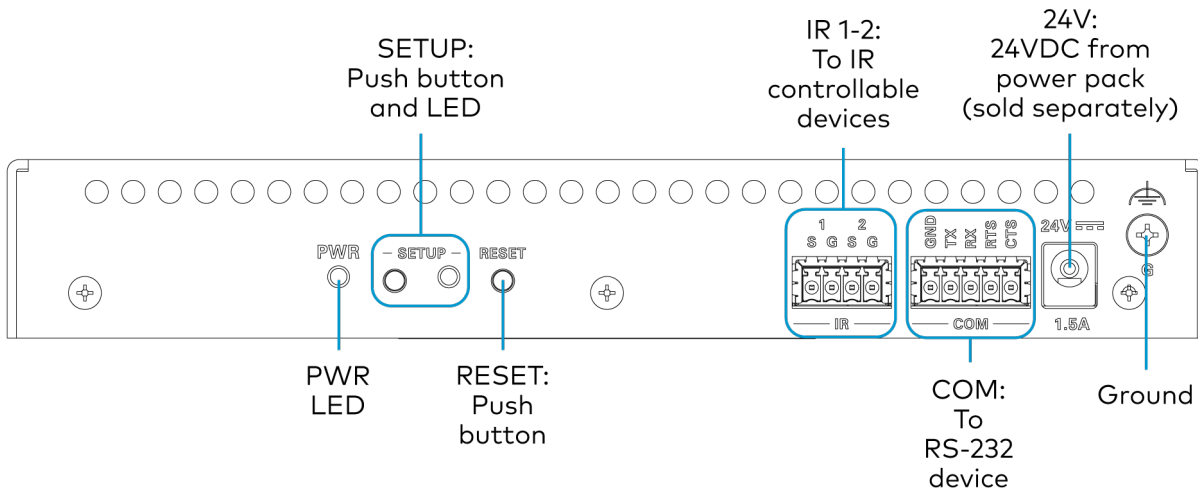
Connect the device as shown in the following illustrations.

### NOTES:

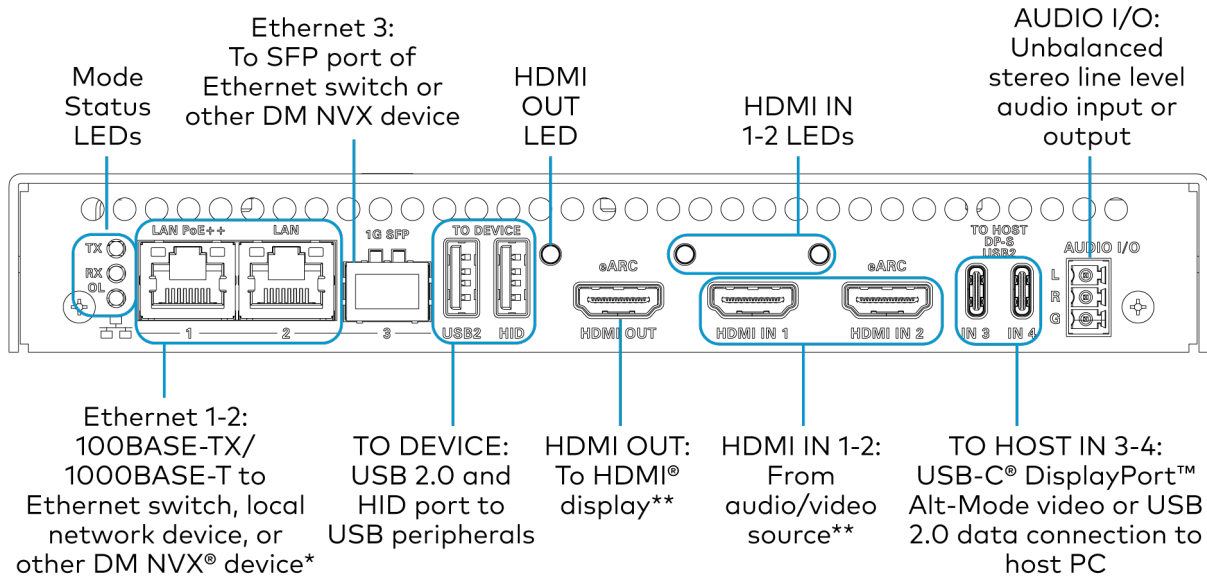
- The DM-NVX-384 provides three Ethernet ports.
  - Ethernet port 1 is a 100BASE-TX/1000BASE-T port and a PoE++ powered device (PD) port. In order for the port to receive PoE++, it must be connected to PoE++ power sourcing equipment (PSE) such as a PoE++ compliant Ethernet switch or IEEE 802.3bt compliant injector.
 

PoE++ or a [PW-2420RU](#) power pack (sold separately) can be used to power the device. Do not connect both types of power simultaneously.
  - Ethernet port 2 is a 100BASE-TX/1000BASE-T port.
  - Ethernet port 3 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - All Ethernet ports can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

#### Top Panel



## Bottom Panel



\*Ethernet port 1 is a PoE++ powered device port.

\*\*eARC functionality is reserved for future use.

## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
OL	Green	The device is online with a control system.
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK	Green	An Ethernet link is established.
Ethernet 3 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUT	Green	A video signal is being transmitted to the HDMI output.
HDMI IN 1	Green	A video signal is detected at the HDMI input.
HDMI IN 2	Green	A video signal is detected at the HDMI input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.



# DM-NVX-D10, DM-NVX-D20, DM-NVX-E10, and DM-NVX-E20 Installation

Refer to the following sections to install the DM-NVX-D10, DM-NVX-D20, DM-NVX-E10, or DM-NVX-E20.

- [In the Box on page 285](#)
- [Mount the Device on page 286](#)
- [Connect the Device on page 287](#)
- [Observe the LED Indicators on page 289](#)
- [Reset the Device on page 289](#)

## In the Box

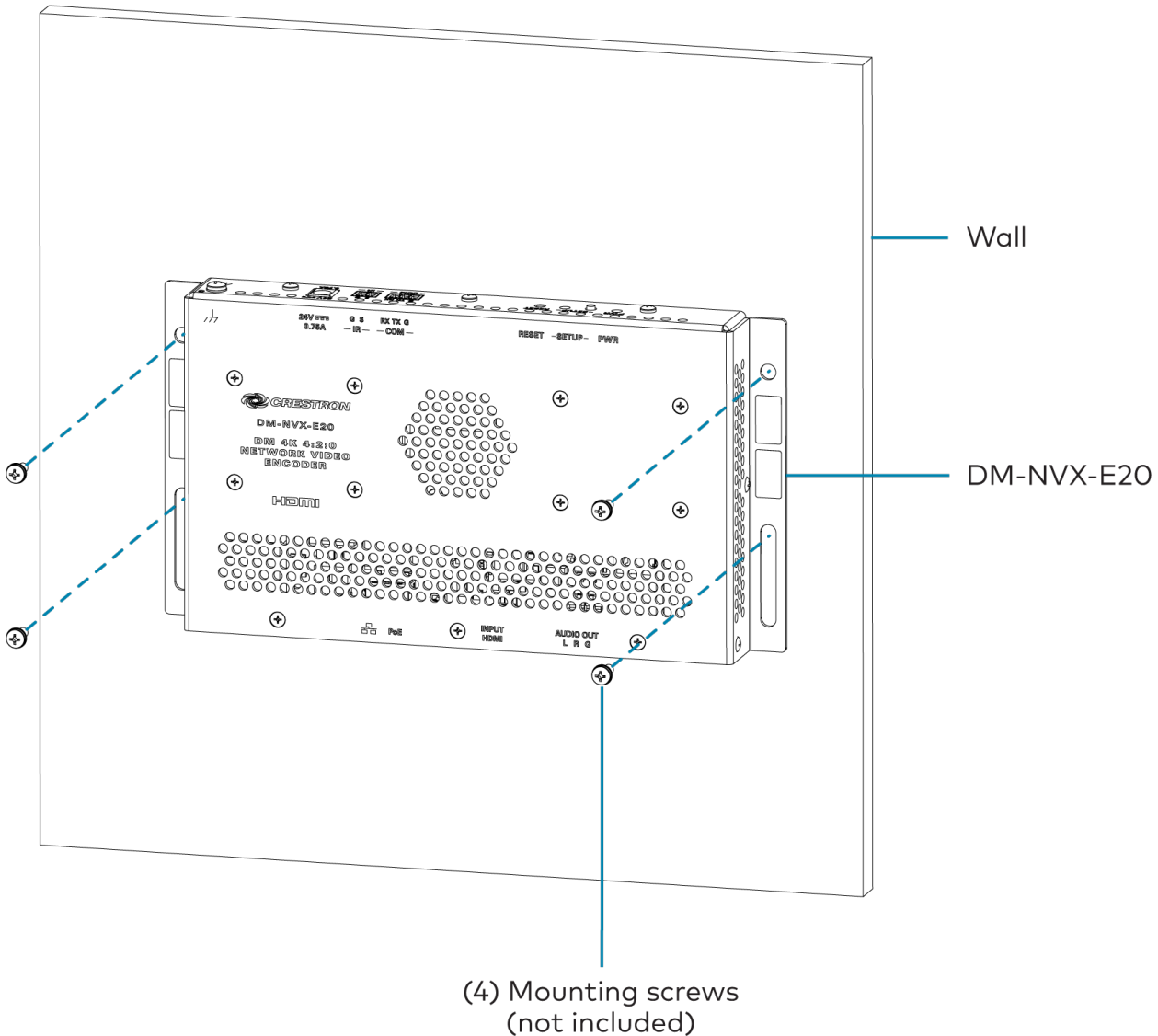
Qty.	Description
1	DM-NVX-D10 or DM-NVX-D20 Network AV Decoder, or DM-NVX-E10 or DM-NVX-E20 Network AV Encoder
<b>Additional Items</b>	
1	2-pin connector (2003574)
2	3-pin connector (2003575)

# Mount the Device

The DM NVX device can be mounted onto a flat surface or rack rail.

## Mount to a Surface

Using four surface-appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table. The screw diameter should be no more than 0.25 in. (6 mm). The DM-NVX-E20 is shown in the illustration below.

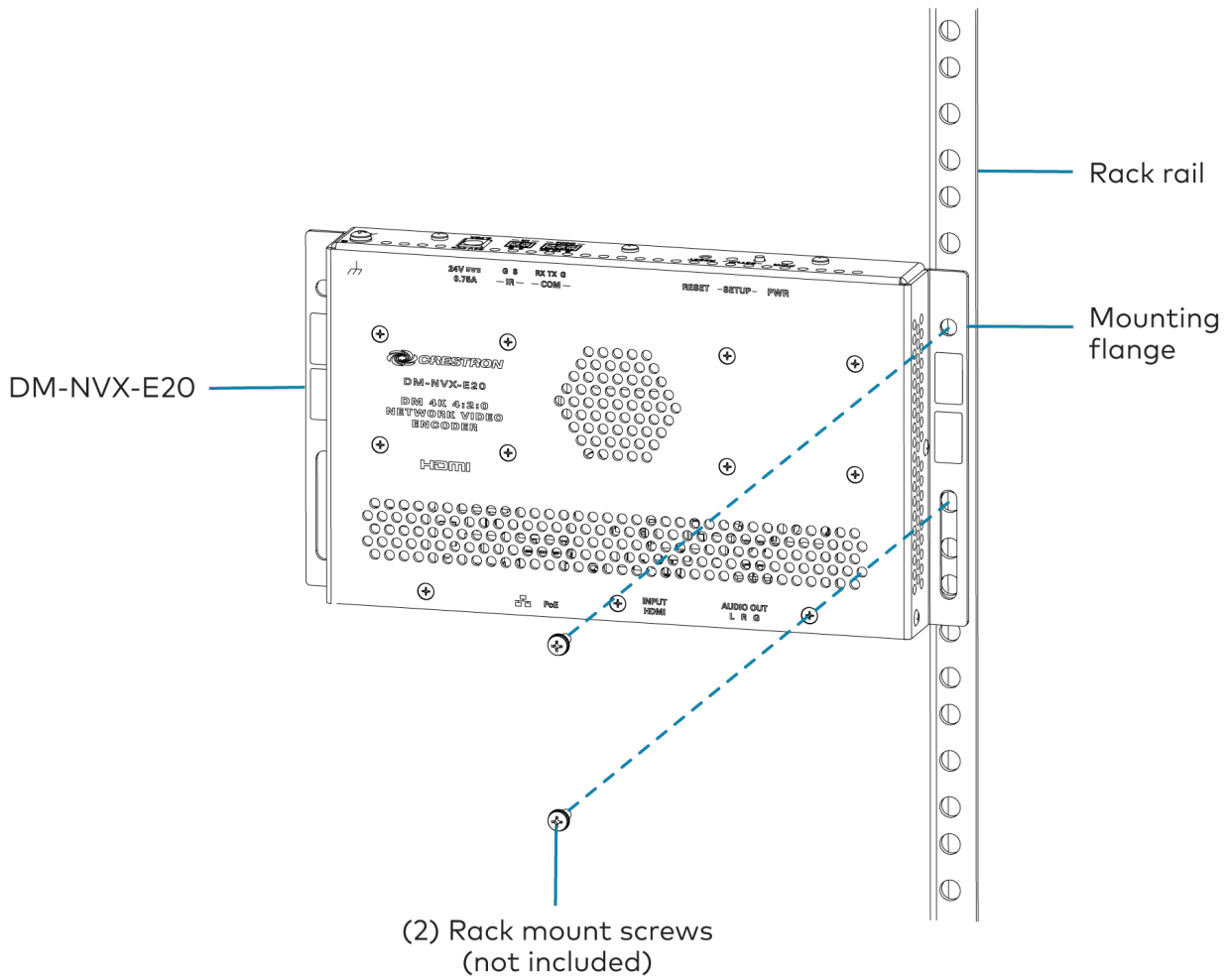


**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

1. Position either the left or right mounting flange so that the holes align with the holes in the rack rail.
2. Using two rack mounting screws (not included), mount the left or right mounting flange of the device to the front or rear rail of a rack. The DM-NVX-E20 is shown in the illustration below.



## Connect the Device

Connect the device as shown in the following illustrations.

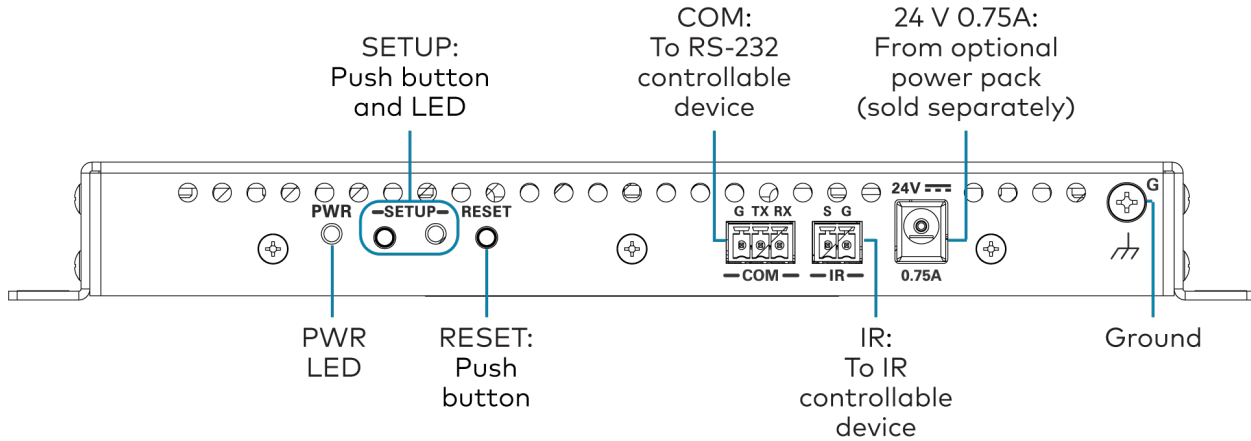
### NOTES:

- The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.

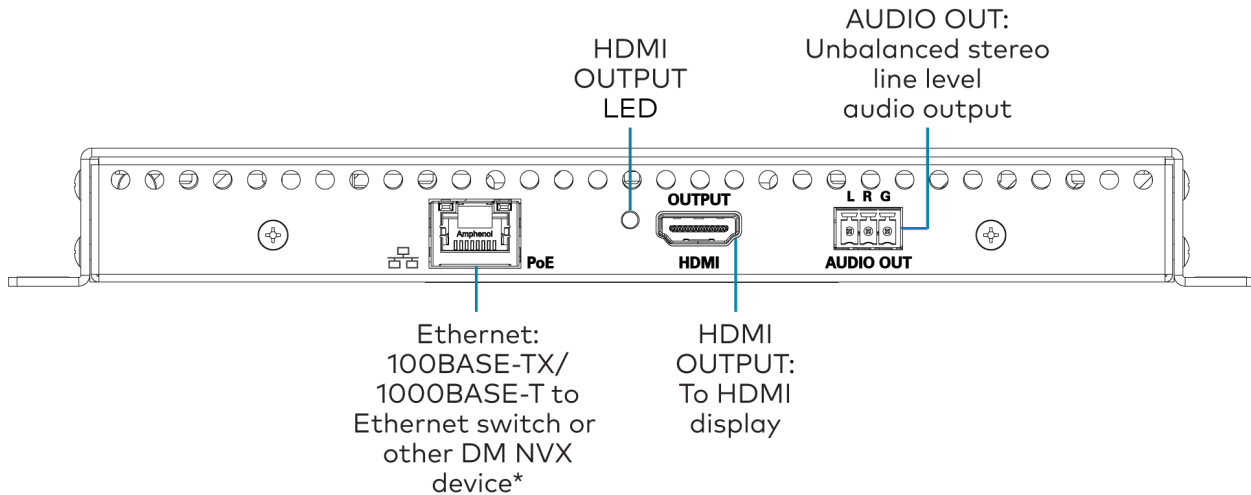
- The DM-NVX-D10, DM-NVX-D20, DM-NVX-E10, and DM-NVX-E20 can be powered via the Ethernet port, which is a PoE powered device (PD) port. In order for the device to receive PoE, the Ethernet port must be connected to a PoE power sourcing equipment (PSE) port of an Ethernet switch.

Alternatively, the devices can be powered by a 24VDC power pack (sold separately).

### Top Panel

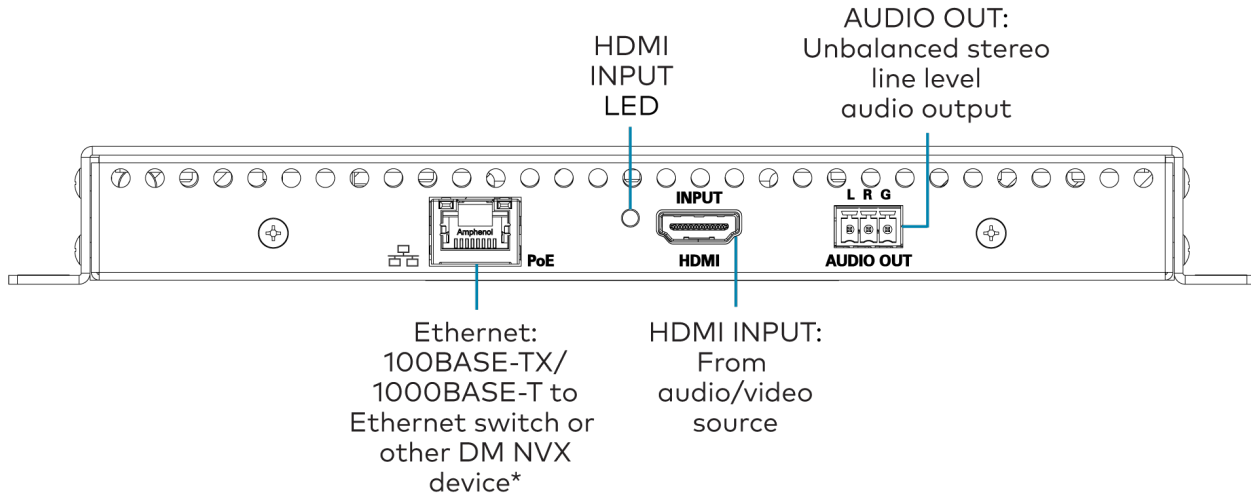


### DM-NVX-D10 and DM-NVX-D20 Bottom Panel



\*The Ethernet port is a PoE powered device port.

## DM-NVX-E10 and DM-NVX-E20 Bottom Panel



\*The Ethernet port is a PoE powered device port.

## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI INPUT (DM-NVX-E10 and DM-NVX-E20 only)	Green	A video signal is detected at the HDMI input.
HDMI OUTPUT (DM-NVX-D10 and DM-NVX-D20 only)	Green	A video signal is being transmitted to the HDMI output.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# DM-NVX-D200 Installation

Refer to the following sections to install the DM-NVX-D200.

- [In the Box on page 291](#)
- [Mount the Device on page 292](#)
- [Connect the Device on page 294](#)
- [Observe the LED Indicators on page 296](#)
- [Reset the Device on page 296](#)

## In the Box

Qty.	Description
1	DM-NVX-D200 Network AV Decoder
<b>Additional Items</b>	
1	2-pin connector (2003574)
2	3-pin connector (2003575)

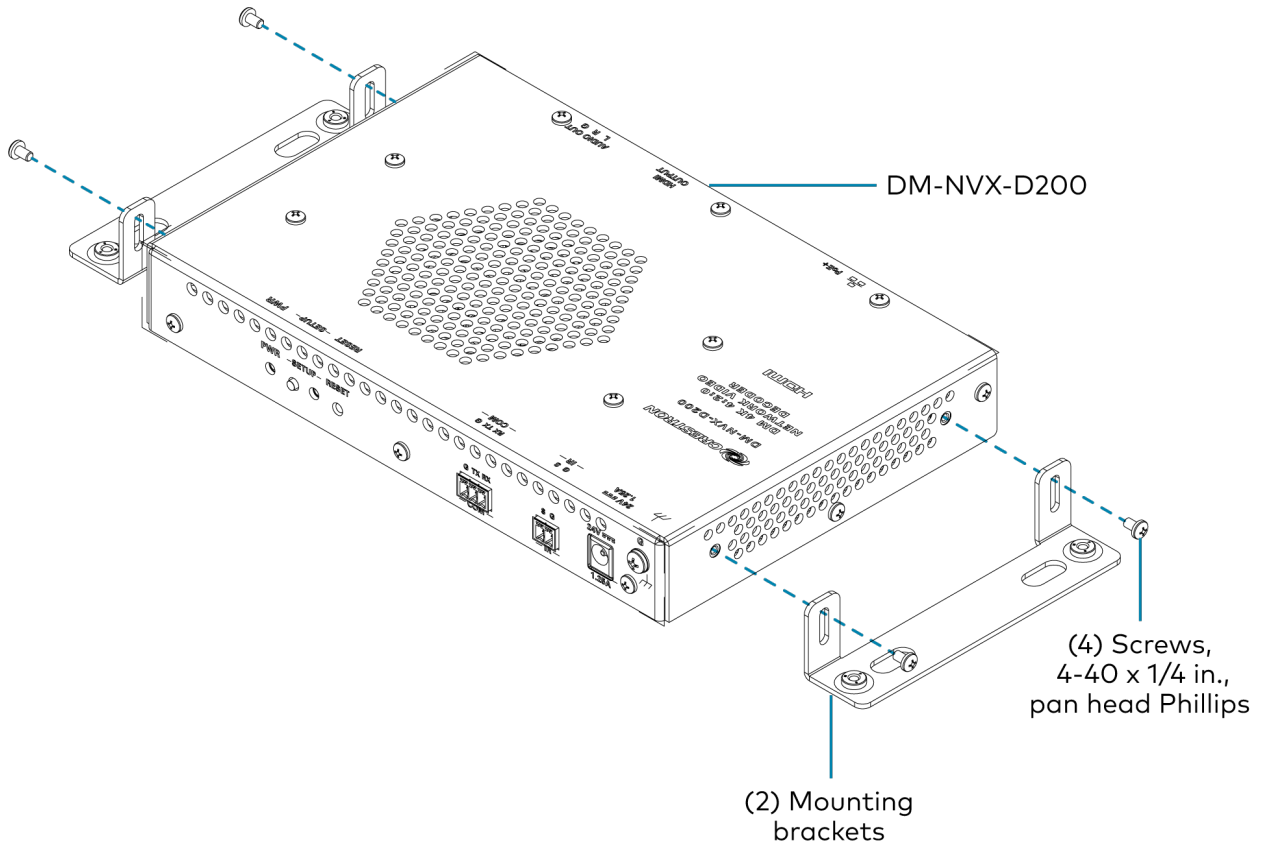
# Mount the Device

The DM-NVX-D200 device can be mounted onto a flat surface or rack rail.

## Mount to a Surface

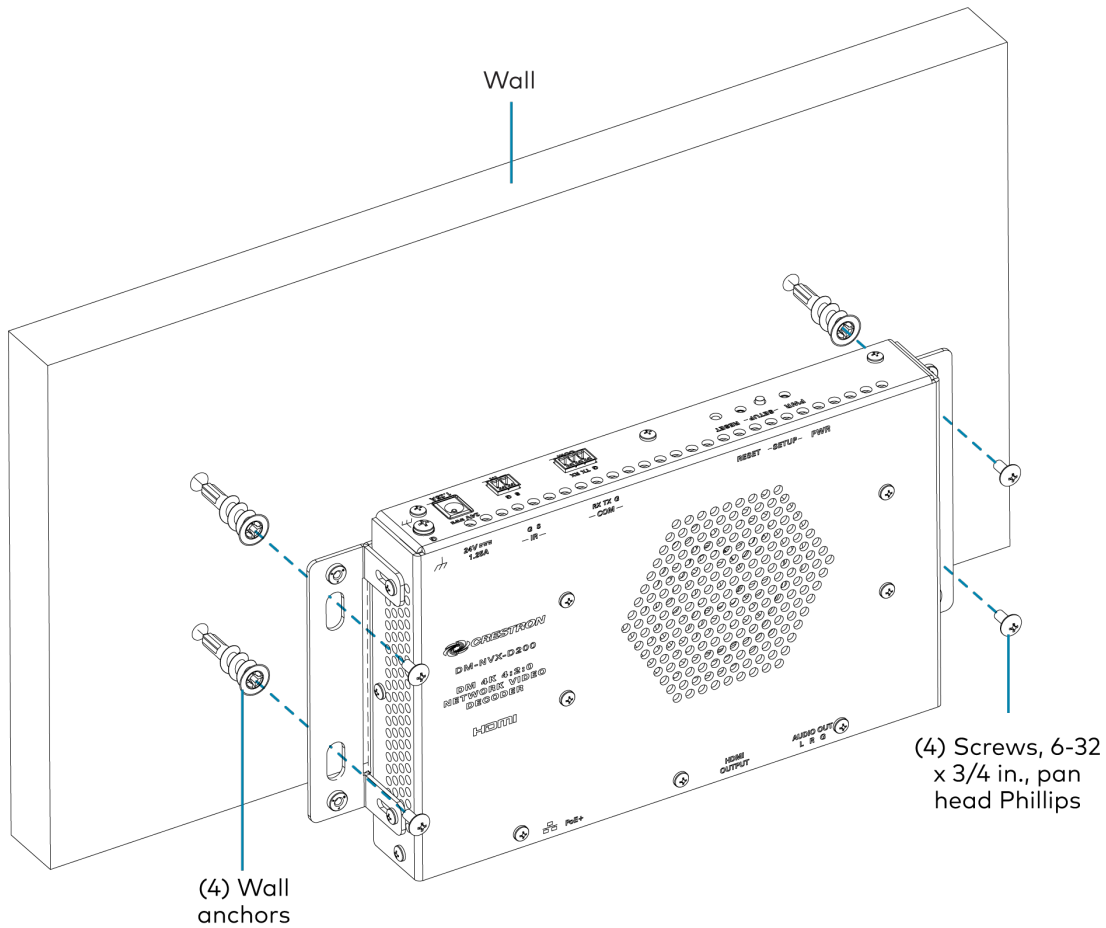
To mount the DM-NVX-D200 to a surface:

1. Use the four included 04-40 1/4 in. Phillips head screws to attach the two included mounting brackets to the sides of the device. Position the bracket so the flange of the bracket aligns with the rear panel of the device.





- Using the four included wall anchors (if necessary) and four surface-mounting 06-32 screws, mount the device onto a flat surface such as a wall or the underside of a table.



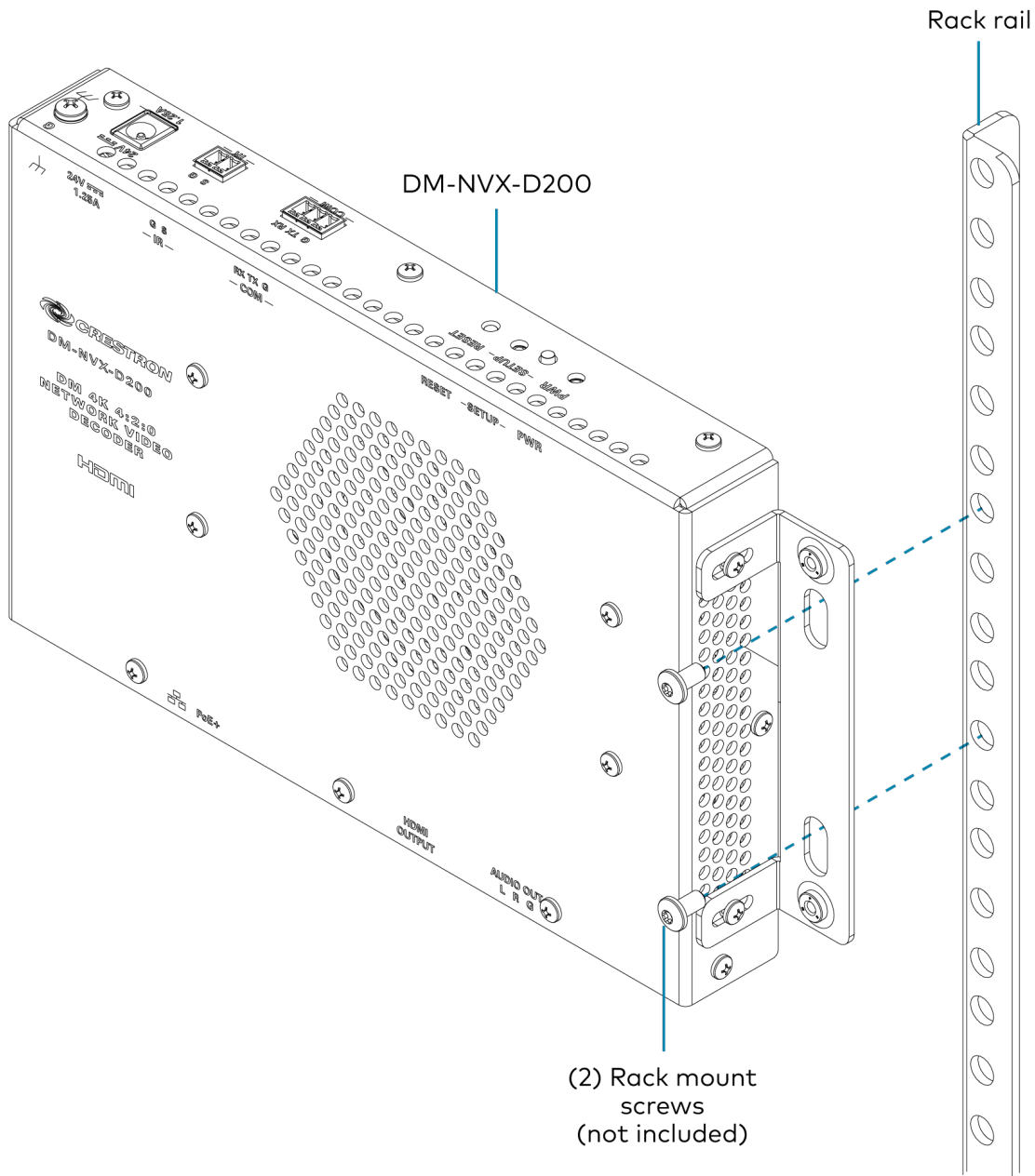
**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

To mount the DM-NVX-D200 to a rack rail:

- Use two of the included 04-40 1/4 in. Phillips head screws to attach one of the included mounting brackets to a side panel of the device.
- Position the mounting bracket so that the holes align with the holes in the rack rail.

3. Secure the device to the rack rail using two rack screws (not included).



## Connect the Device

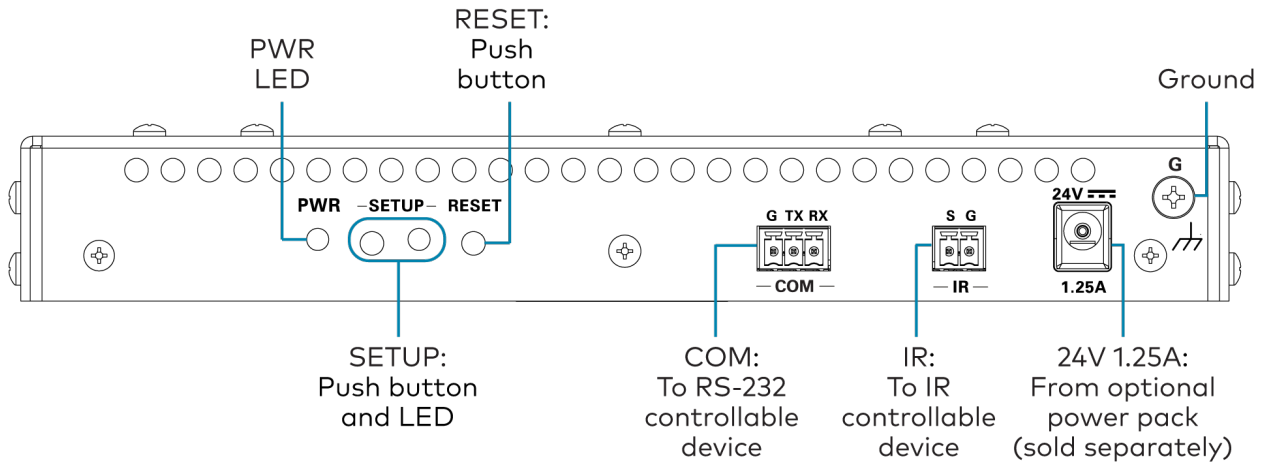
Connect the device as shown in the following illustrations.

### NOTES:

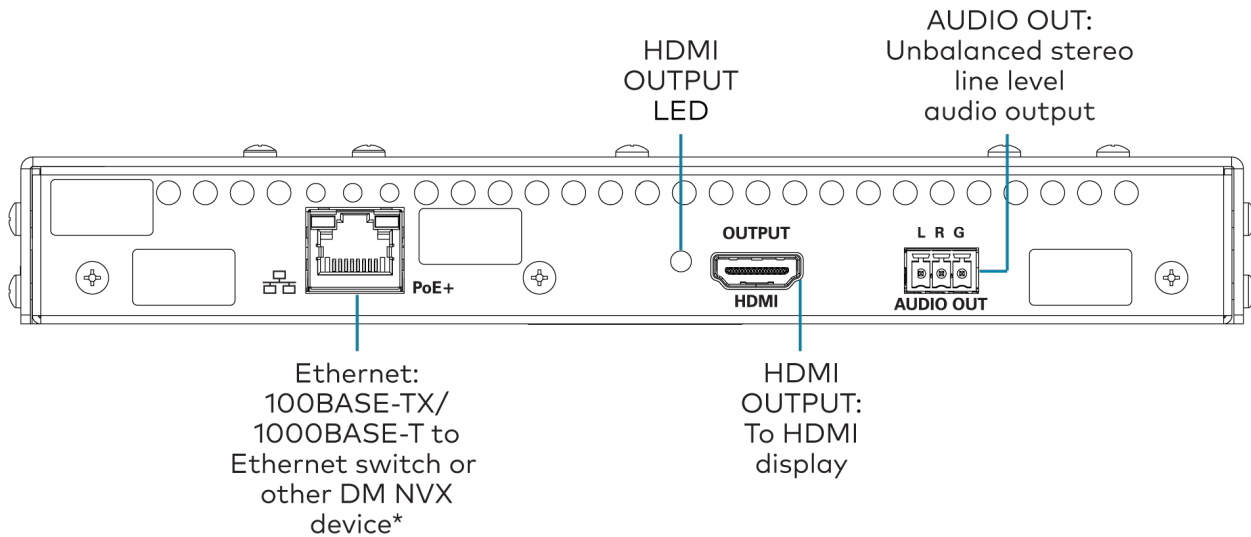
- The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.

- The DM-NVX-D200 can be powered via the Ethernet port, which is a PoE+ powered device (PD) port. In order for the device to receive PoE+, the Ethernet port must be connected to a PoE+ power sourcing equipment (PSE) port of an Ethernet switch. Alternatively, the devices can be powered by a 24VDC power pack (sold separately).

### Top Panel



### Bottom Panel



\*The Ethernet port is a PoE+ powered device port.

# Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI OUTPUT	Green	A video signal is being transmitted to the HDMI output.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# DM-NVX-E20-2G Installation

Refer to the following sections to install the DM-NVX-E20-2G-B-T and DM-NVX-E20-2G-W-T.

- [In the Box on page 297](#)
- [Install the Device into an Electrical Box on page 297](#)
- [Connect the Device on page 297](#)
- [Observe the LED Indicators on page 299](#)
- [Reset the Device on page 299](#)

## In the Box

Qty.	Description
1	DM-NVX-E20-2G-B-T or DM-NVX-E20-2G-W-T Network AV Encoder
<b>Additional Items</b>	
4	Screw, 06-32, 1 in. steel, truss-head combo (2054883)

## Install the Device into an Electrical Box

The DM-NVX-E20-2G is designed for installation into a 2-gang electrical box (not included) in a wall, floor, or ceiling. A minimum mounting depth of 2 in. (51 mm) is required.

To install the device into an electrical box:

1. Use a Phillips screwdriver (not included) to attach the DM-NVX-E20-2G to the electrical box using the four included #6-32 x 1 in. combo truss head screws.
2. Attach an FP-G2-DM Series decorator-style faceplate (black [FP-G2-DM-B-T](#) or white [FP-G2-DM-W-T](#), sold separately) to the front of the DM-NVX-E20-2G.

**NOTE:** An FP-G2-DM Series faceplate is required. Faceplates other than the FP-G2-DM Series are incompatible with the DM-NVX-E20-2G.

## Connect the Device

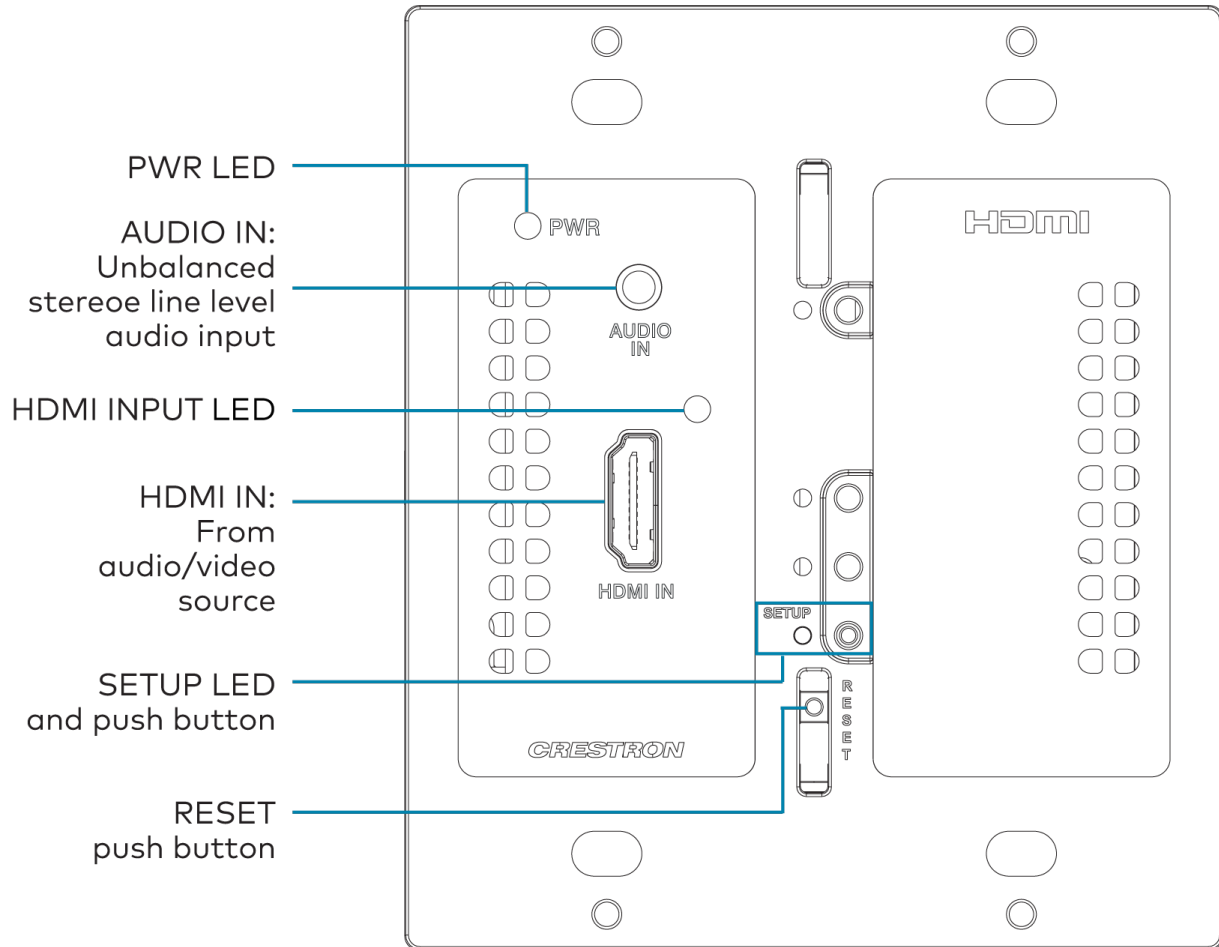
Connect the device as shown in the following illustrations.

### NOTES:

- The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.

- The DM-NVX-E20-2G can be powered via the Ethernet port, which is a PoE powered device (PD) port. In order for the device to receive PoE, the Ethernet port must be connected to a PoE power sourcing equipment (PSE) port of an Ethernet switch.  
Alternatively, the device can be powered by a 24VDC power pack ([PW2407-WUL](#), sold separately).

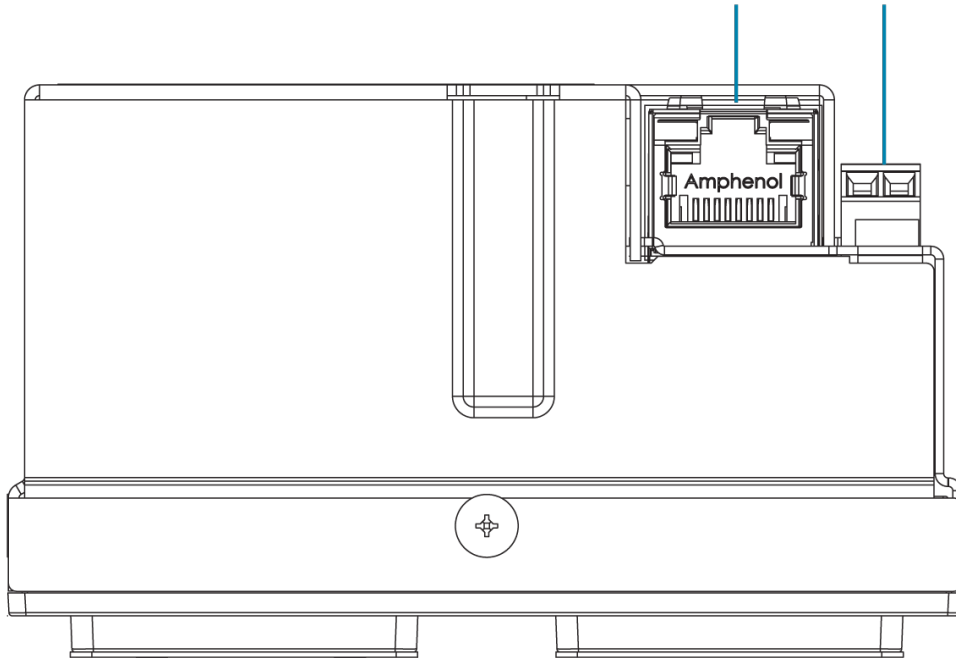
**Front Panel**



## Top Panel

Ethernet:  
100BASE-TX/  
1000BASE-T to  
Ethernet switch or  
other DM NVX device\*

24V 0.75A:  
From  
PW-2407WUL  
power pack  
(sold separately)



\*The Ethernet port is a PoE powered device port.

## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI IN	Green	A video signal is detected at the HDMI input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.



# DM-NVX-D30 and DM-NVX-E30

## Installation

Refer to the following sections to install the DM-NVX-D30 or DM-NVX-E30.

**NOTE:** This topic covers the installation of the room box models only. Refer to [Card Installation on page 316](#) for instructions on installing the DM-NVX-D30C and DM-NVX-E30C.

- [In the Box on page 301](#)
- [Mount the Device on page 302](#)
- [Connect the Device on page 304](#)
- [Observe the LED Indicators on page 306](#)
- [Reset the Device on page 306](#)

## In the Box

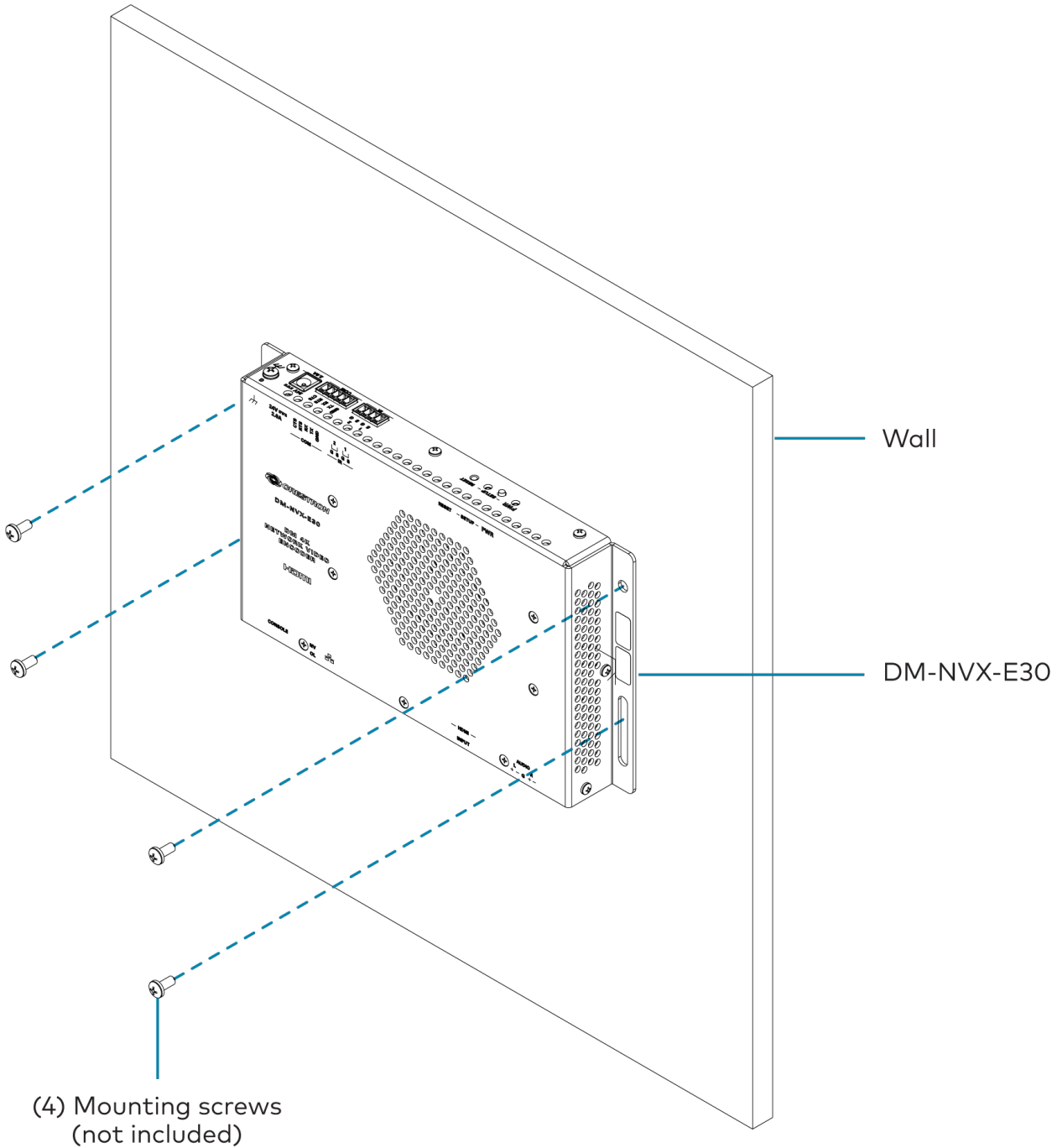
Qty.	Description
1	DM-NVX-D30 Network AV Decoder or DM-NVX-E30 Network AV Encoder
<b>Additional Items</b>	
1	4-pin connector (2003576)
2	5-pin connector (2003577)

# Mount the Device

The DM NVX device can be mounted onto a flat surface or rack rail.

## Mount to a Surface

Using four surface-appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table. The screw diameter should be no more than 0.25 in. (6 mm). The DM-NVX-E30 is shown in the illustration below.

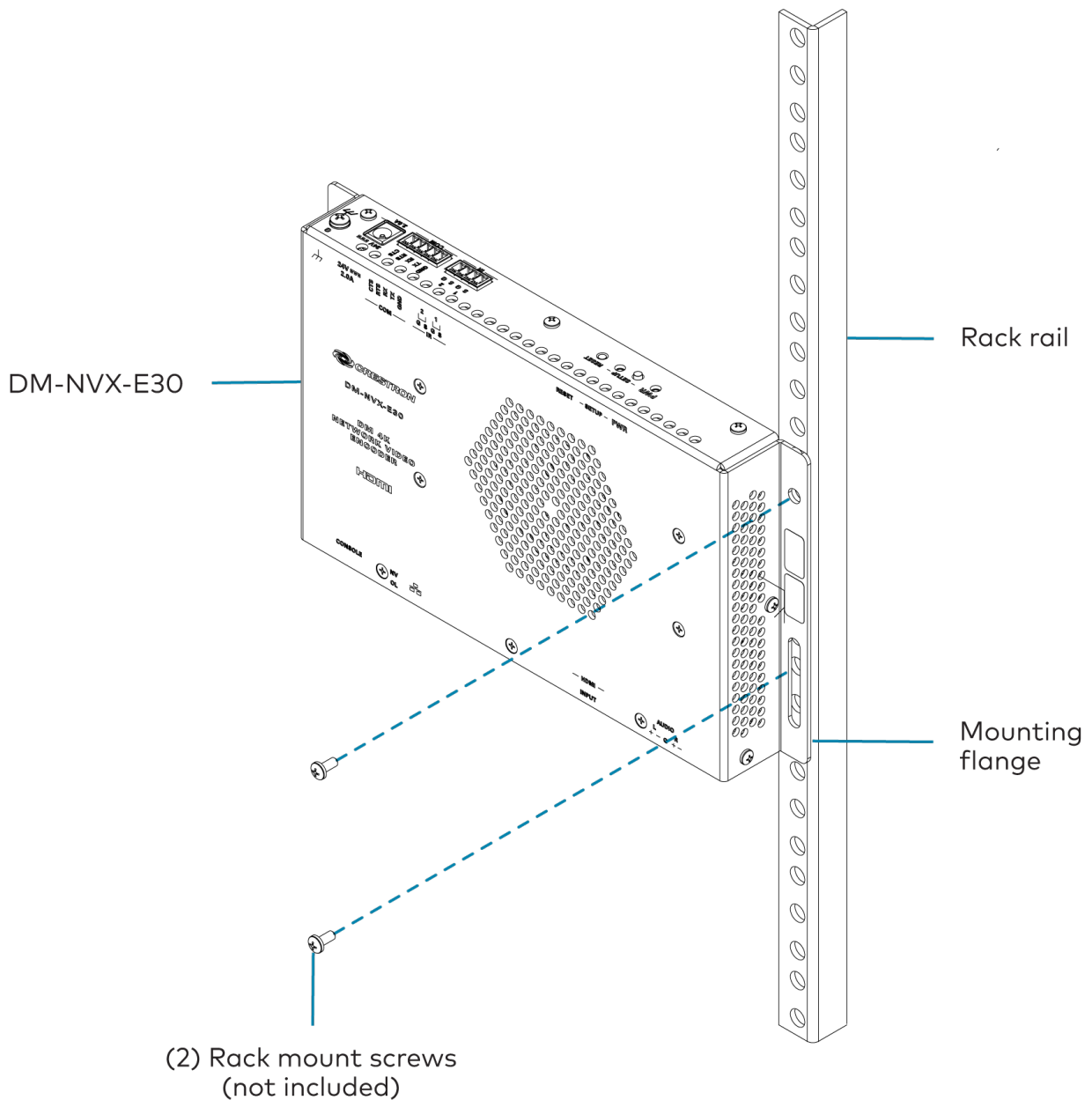


**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

1. Position either the left or right mounting flange so that the holes align with the holes in the rack rail.
2. Using two rack mounting screws (not included), mount the left or right mounting flange of the device to the front or rear rail of a rack. The DM-NVX-E30 is shown in the illustration below.



# Connect the Device

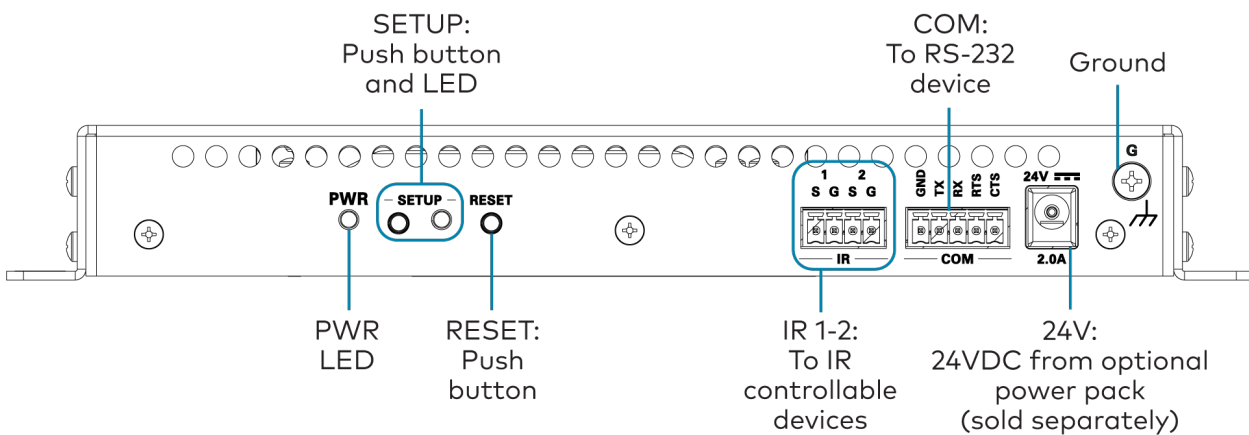
Connect the device as shown in the following illustrations.

## NOTES:

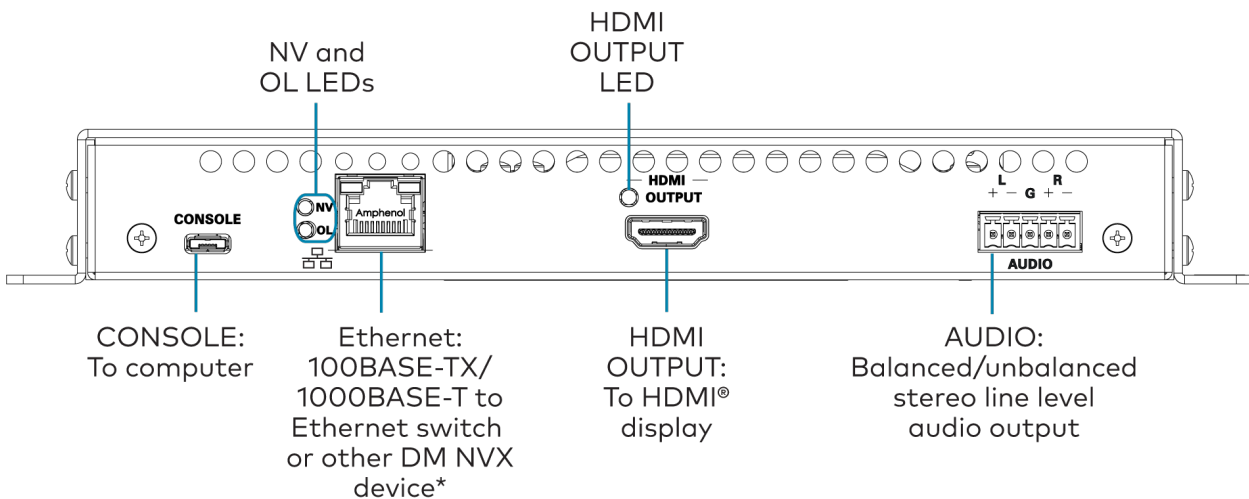
- The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.
- The DM-NVX-D30 and DM-NVX-E30 can be powered via the Ethernet port, which is a PoE+ powered device (PD) port. In order for the device to receive PoE+, the Ethernet port must be connected to a PoE+ port of an Ethernet switch.

Alternatively, the devices can be powered by a 24VDC power pack (sold separately).

### DM-NVX-D30 and DM-NVX-E30 Top Panel

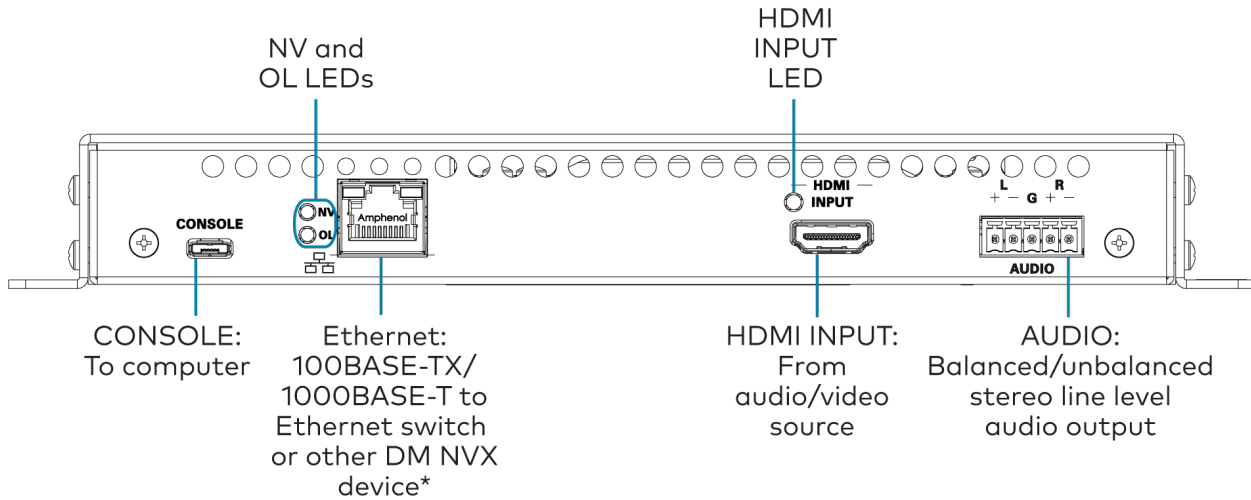


### DM-NVX-D30 Bottom Panel



\*The Ethernet port is a PoE+ powered device port.

## DM-NVX-E30 Bottom Panel

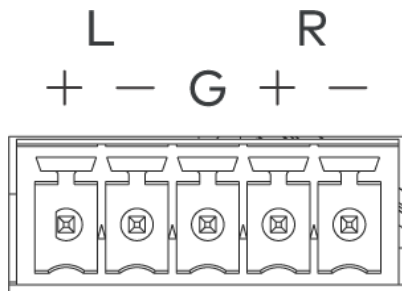


\*The Ethernet port is a PoE+ powered device port.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio output.

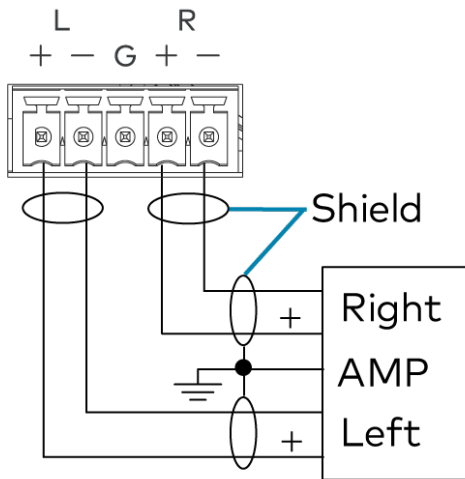
### AUDIO Connector



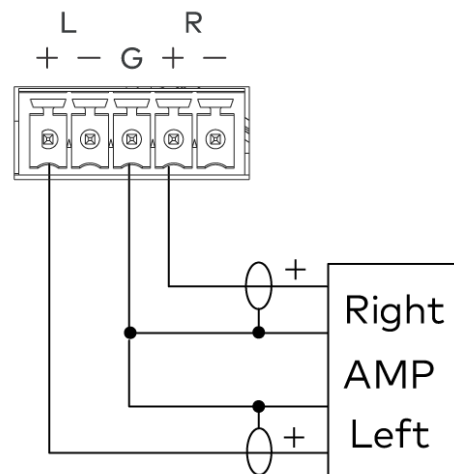
Refer to the following table and diagrams for balanced and unbalanced pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+
-	R-	Open

## Balanced Output



## Unbalanced Output



## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
NV	Green	(DM-NVX-E30 only) The device is encoding (transmitting) network video.
		(DM-NVX-D30 only) The device is decoding (receiving) network video.
OL	Green	The device is online with a control system.
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI INPUT (DM-NVX-E30 only)	Green	A video signal is detected at the HDMI input.
HDMI OUTPUT (DM-NVX-D30 only)	Green	A video signal is being transmitted to the HDMI output.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# DM-NVX-E760 Installation

Refer to the following sections to install the DM-NVX-E760.

**NOTE:** This topic covers the installation of the room box model only. Refer to [Card Installation on page 316](#) for instructions on installing the DM-NVX-E760C.

- [In the Box on page 308](#)
- [Mount the Device on page 309](#)
- [Connect the Device on page 312](#)
- [Observe the LED Indicators on page 314](#)
- [Reset the Device on page 314](#)

## In the Box

Qty.	Description
1	DM-NVX-E760 Network AV Encoder/Decoder
<b>Additional Items</b>	
1	Power pack, 24VDC, 2.5A, 100-240VAC (2045873)
2	Power cord, 5 ft 10 in. (1.78 m) (2042043)
1	Connector, 5-pin (2003577)



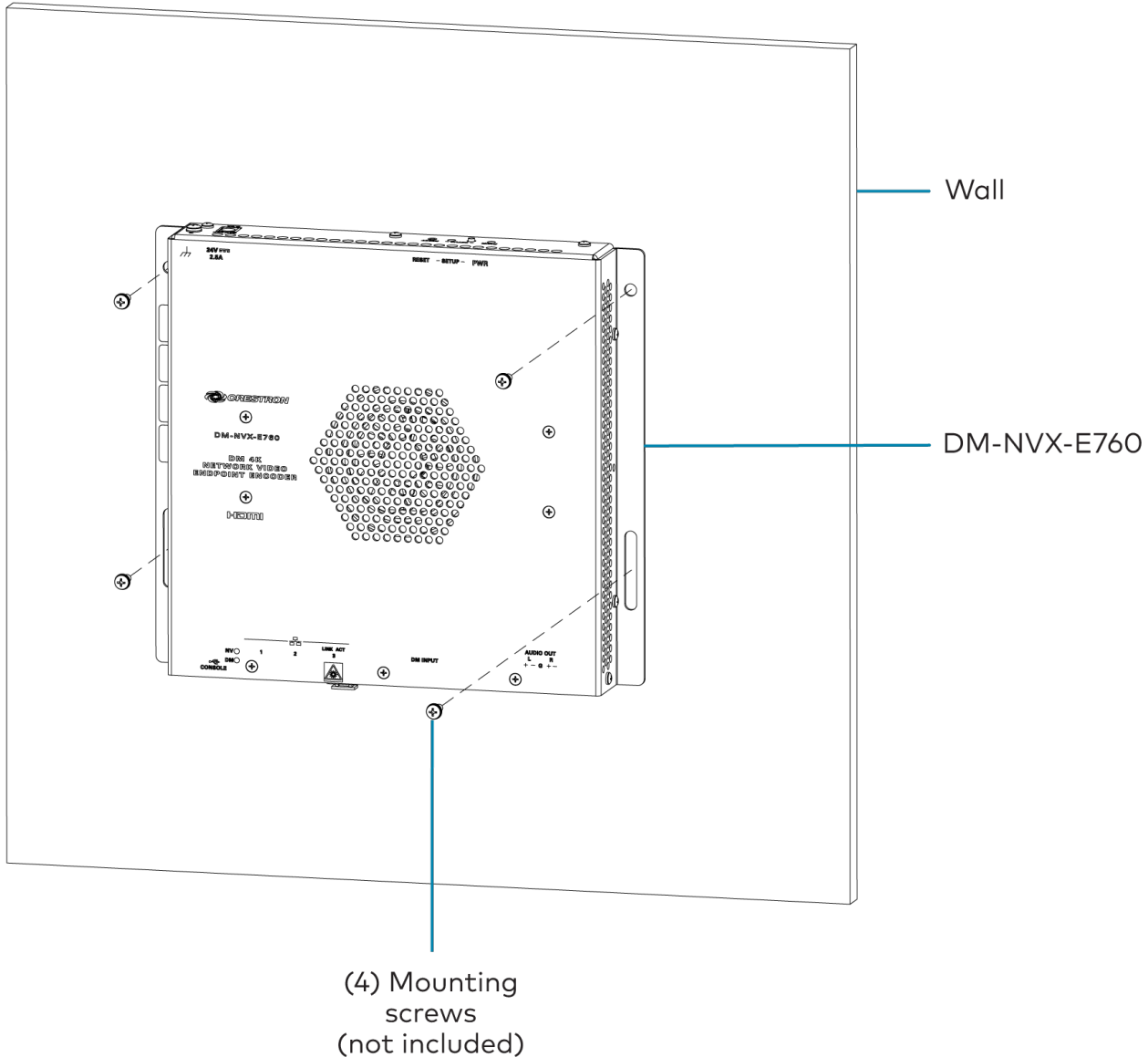
# Mount the Device

The DM-NVX-E760 can be mounted onto a flat surface or rack rail.

## Mount to a Surface

To mount the DM-NVX-E760 to a surface:

Using four surface-appropriate mounting screws (not included), mount the device onto a flat surface such as a wall or the underside of a table.



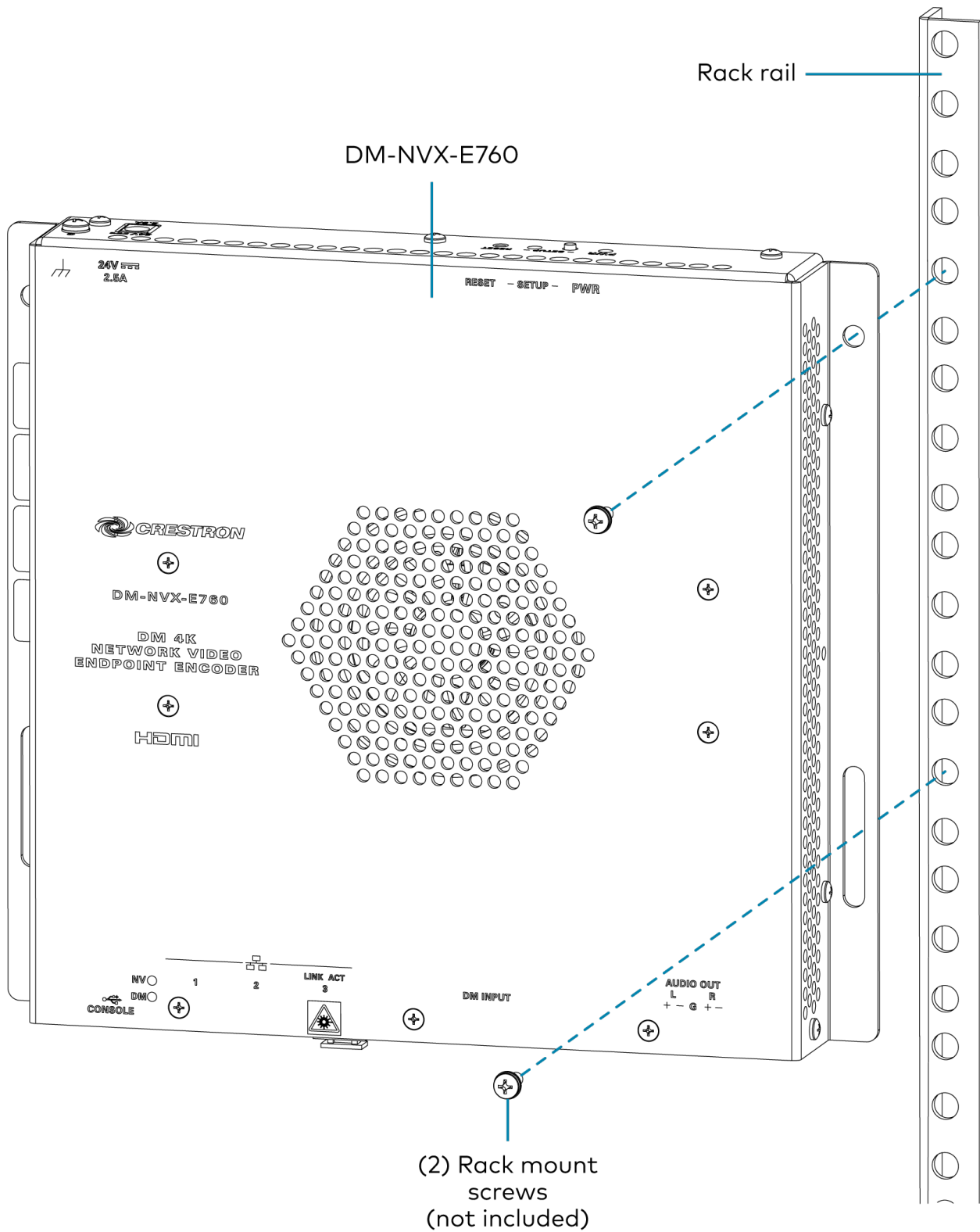
**NOTE:** Fan ventilation holes are provided on five sides of the device. If the installation necessitates that another object be positioned flush against the ventilation holes on one side of the device, leave a minimum clearance of 2 in. (51 mm) of space on all other sides containing ventilation holes.

## Mount to a Rack Rail

The device can be mounted onto a front or rear rack rail. To mount the device:

1. Position either the left or right mounting flange so that the holes align with the holes in the rack rail.

- Secure the device to the rack rail using two rack screws (not included).



# Connect the Device

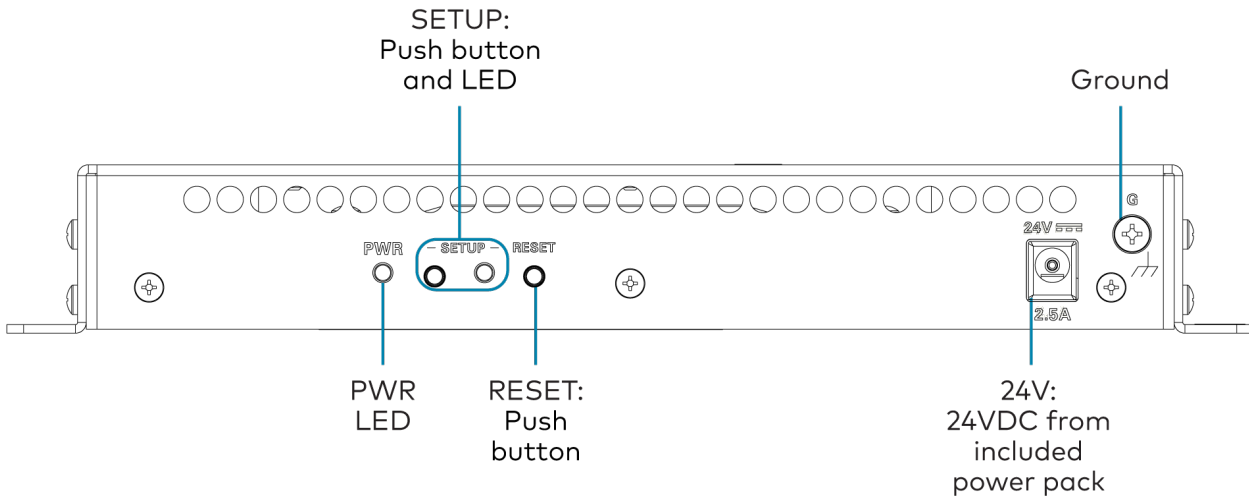
Connect the device as shown in the following illustrations.

## NOTES:

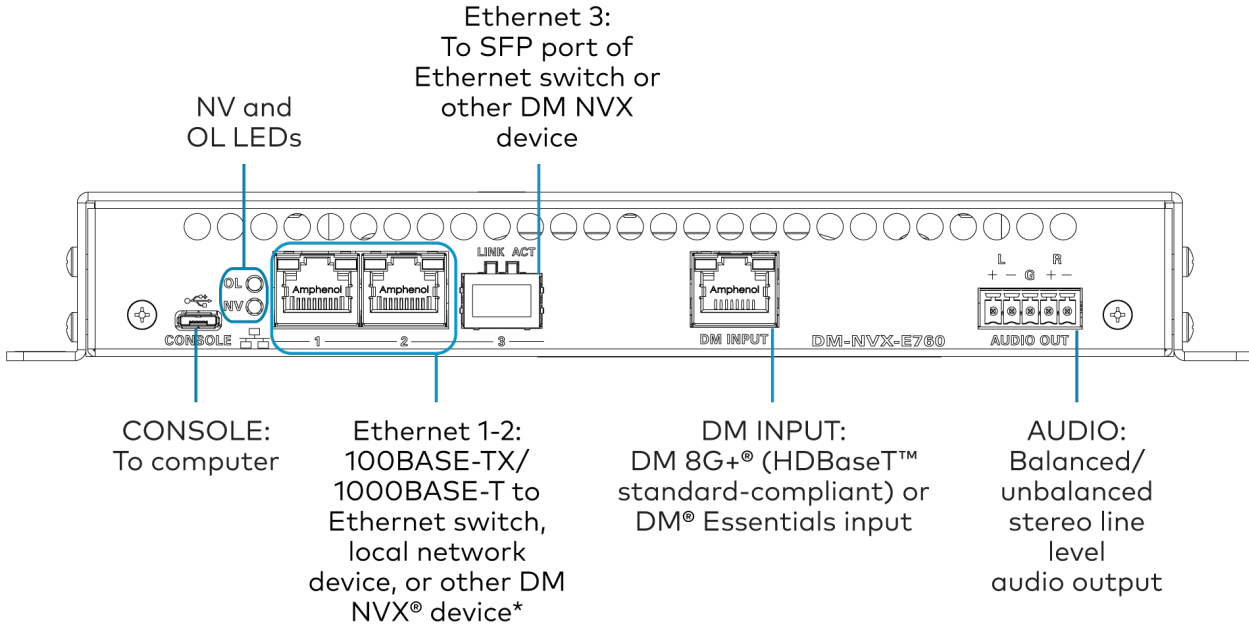
- The DM-NVX-E760 provides three Ethernet ports.
  - Ethernet port 1 is a 100BASE-TX/1000BASE-T port and a PoE++ powered device (PD) port. In order for the port to receive PoE++, it must be connected to PoE++ power sourcing equipment (PSE) such as a PoE++ compliant Ethernet switch or IEEE 802.3bt compliant injector.

PoE++ or the included [PW-2420RU](#) power pack can be used to power the device. Do not connect both types of power simultaneously.
  - Ethernet port 2 is a 100BASE-TX/1000BASE-T port.
  - Ethernet port 3 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - All Ethernet ports can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

## Top Panel



## Bottom Panel



\*Ethernet port 1 is a PoE++ powered device port.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio output.

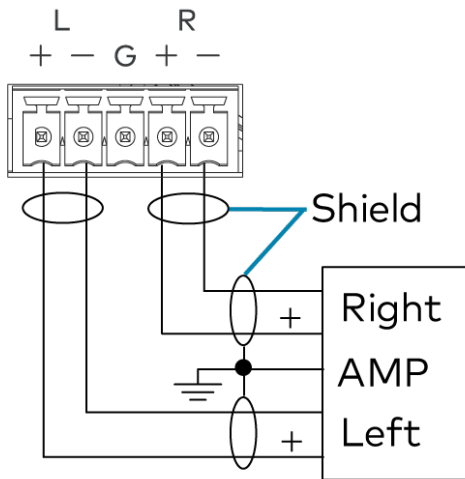
### AUDIO Connector



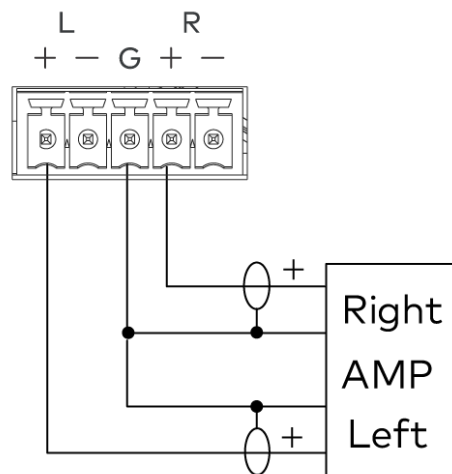
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

## Balanced Output



## Unbalanced Output



## Observe the LED Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
PWR	Amber	Power is applied to the device and the device is booting.
	Green	Power is applied to the device and the device is operational.
SETUP	Red	The SETUP button is pressed.
NV	Green	The device is transmitting (encoding) network video.
OL	Green	The device is online with a control system.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK	Green	An Ethernet link is established.
Ethernet 3 ACT	Flashing green	Data activity is occurring on the Ethernet link.
DM INPUT	Green	A DM®, HDBaseT™, or DM Essentials link is established.
	Amber	HDCP video is detected at the input.
	Flashing amber	Non-HDCP video is detected at the input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

To restore a DM NVX device to factory default settings:

1. Press the **RESET** button 11 times, allowing 3-5 seconds between each press.
2. After the 11th press, wait until the **PWR** LED illuminates green.
3. Hold the **SETUP** button for 5 seconds.

The device will complete its current boot-up process, then reboot itself one more time. After this final boot-up, it will be restored to factory default settings.

# Card Installation

Refer to the following sections to install a DM NVX card (C models).

**NOTE:** This section applies to the following models:

- DM-NVX-350C
- DM-NVX-351C
- DM-NVX-352C
- DM-NVX-360C
- DM-NVX-363C
- DM-NVX-384C
- DM-NVX-D30C
- DM-NVX-E30C
- DM-NVX-E760C

- [In the Box on page 316](#)
- [Install the Device into a DMF-CI-8 on page 316](#)
- [Connect the Device on page 318](#)
- [Observe the LED Indicators on page 331](#)
- [Reset the Device on page 334](#)

## In the Box

Qty.	Description
1	Network AV Card
<b>DM-NVX-384C Only</b>	
1	Connector, 3-pin (2058278)
<b>All Other Models</b>	
1	Connector, 5-pin (2003577)

## Install the Device into a DMF-CI-8

The DM NVX card is designed to occupy a card slot of a [DMF-CI-8](#) card chassis.



**CAUTION:** To prevent bodily injury when mounting or servicing the unit in a rack, observe the following guidelines:

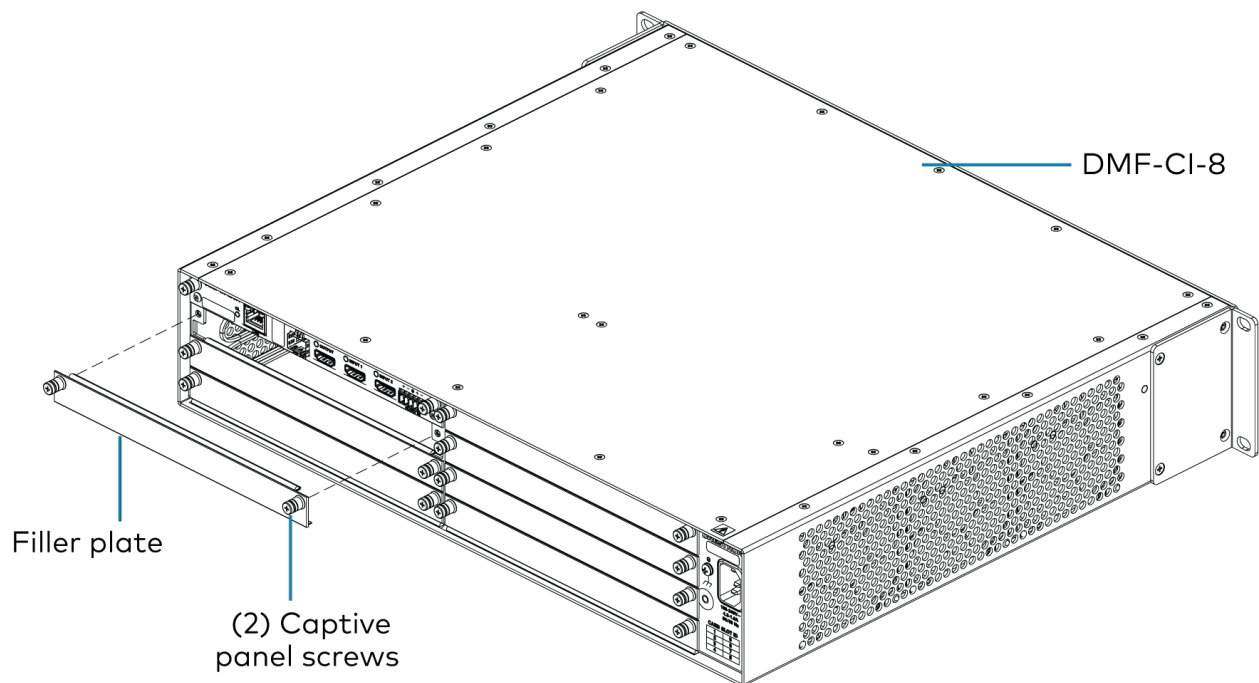
- DM NVX cards are susceptible to damage from electrostatic discharge (ESD). Observe standard ESD precautions when handling the cards. Wear an ESD wrist strap that is connected to ground, and place the cards on grounded surfaces only.
- To prevent damage to a card that is connected to cables, disconnect all cables from the card before installing the card into a card slot or removing the card.

**NOTES:**

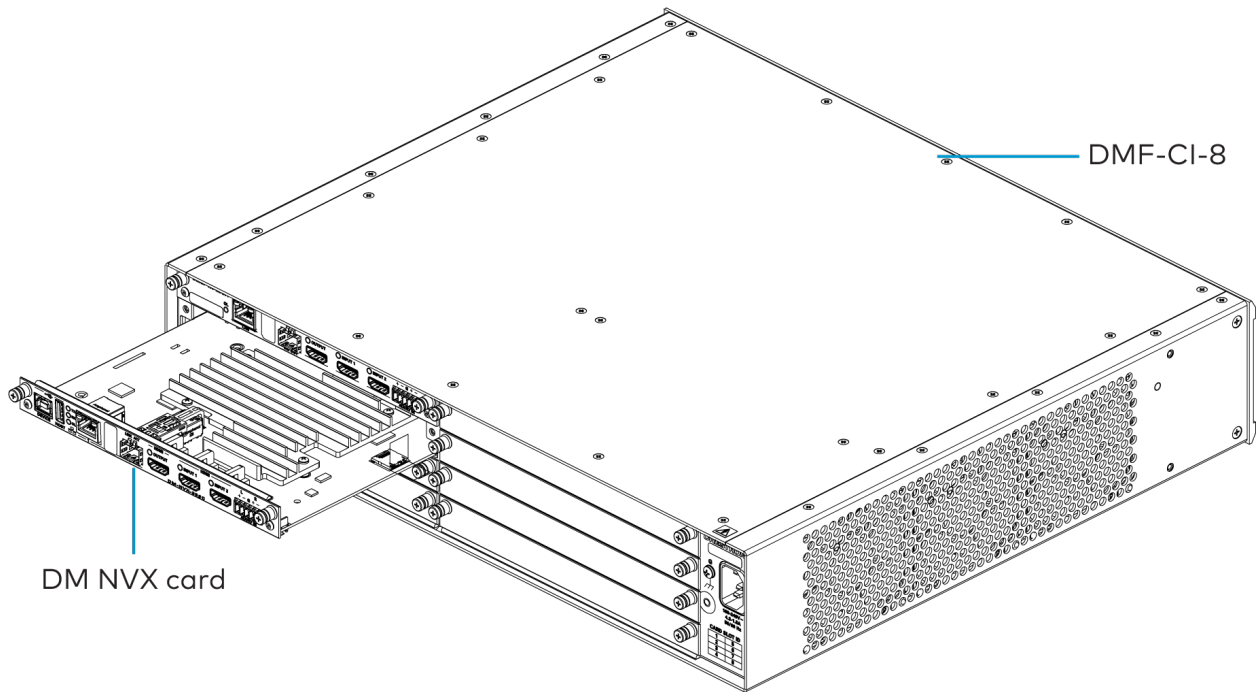
- In a new installation of the DMF-CI-8, it is recommended that the cards be installed before power is applied to the chassis. In an existing installation of the DMF-CI-8, cards can be added or replaced without the need to shut down the chassis.
- When installing the cards into a partially populated DMF-CI-8, install the cards into slots 5 through 8 before using slots 1 through 4. This ensures better cooling and lower power consumption.
- Always cover empty slots using the filler plates included with the DMF-CI-8.

To install the card into a slot:

1. Use a #2 Phillips screwdriver (not included) or your fingers to loosen the two captive screws on the filler plate of an unused chassis slot, then remove the filler plate.



- Carefully insert the card into the card guides of the slot, then push the card inward until it situates in the chassis backplane.



- Finger-tighten the two captive screws on the front panel of the card to secure it to the chassis. Do not overtighten the screws.

## Connect the Device

Available connections for the devices depend on the physical connectors present on each model. Refer to the following sections:

- [Connect the DM-NVX-350C and DM-NVX-351C on page 318](#)
- [Connect the DM-NVX-352C on page 321](#)
- [Connect the DM-NVX-360C and DM-NVX-363C on page 323](#)
- [Connect the DM-NVX-384C on page 326](#)
- [Connect the DM-NVX-D30C on page 326](#)
- [Connect the DM-NVX-E30C on page 328](#)
- [Connect the DM-NVX-E760C on page 329](#)

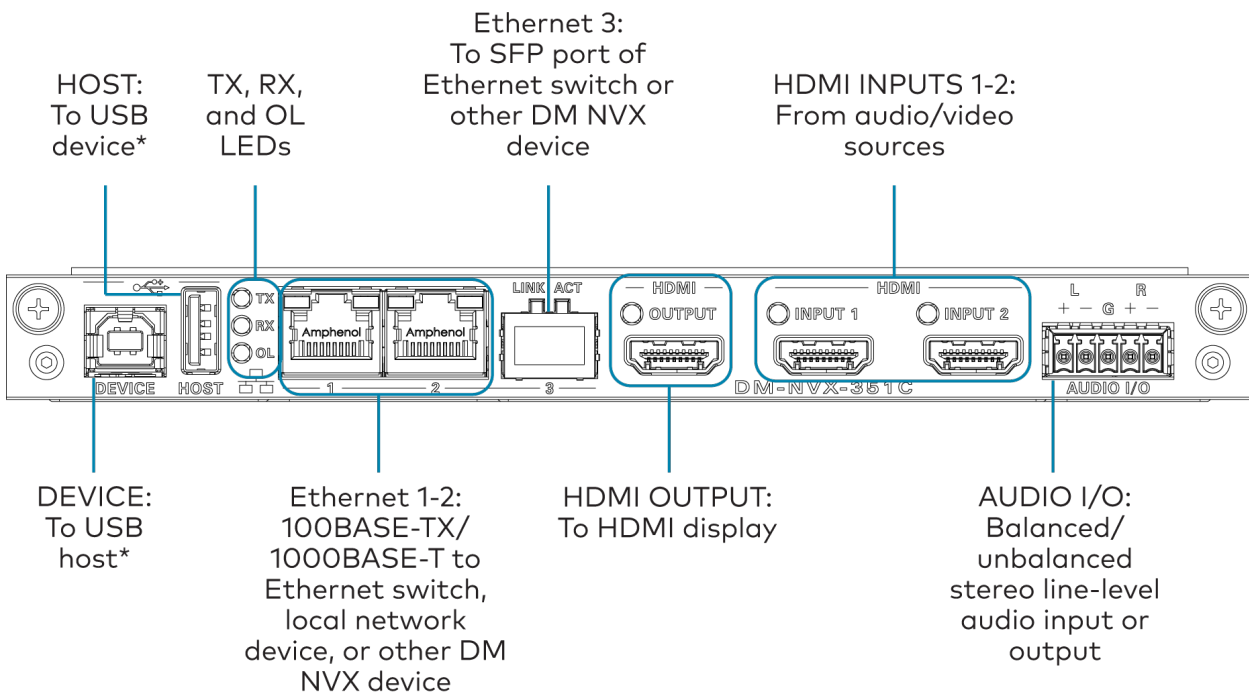
### Connect the DM-NVX-350C and DM-NVX-351C

Connect the device as shown in the following illustrations.

#### NOTES:

- The DM-NVX-350C and DM-NVX-351C each provide three Ethernet ports.
  - Ethernet ports 1 and 2 are 100BASE-TX/1000BASE-T ports.
  - Ethernet port 3 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - All Ethernet ports can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

#### Front Panel (DM-NVX-350C and DM-NVX-351C)



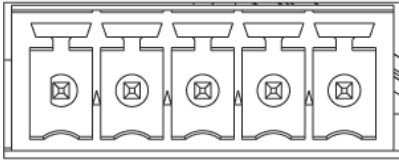
\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

#### Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio input or output.

## AUDIO Connector

L                      R  
+ -    G    + -

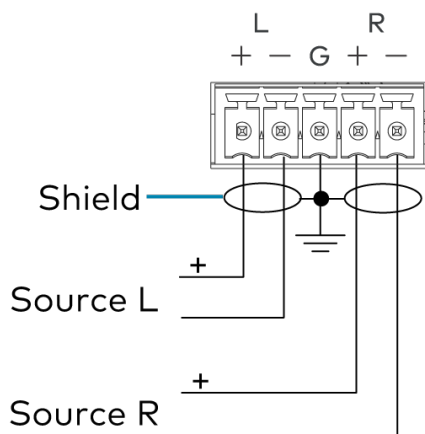


### Balanced/Unbalanced Audio Input

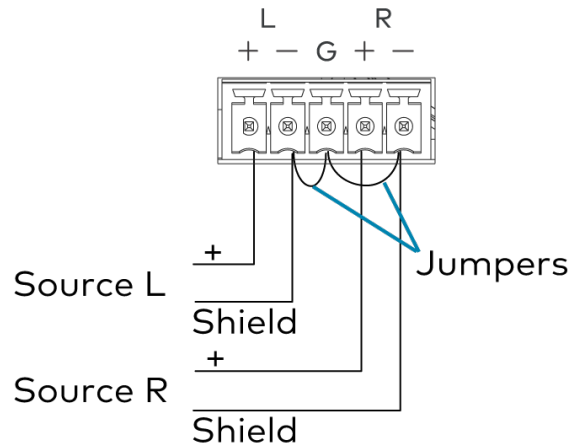
Refer to the following table and diagrams for balanced and unbalanced input pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ In
-	L-	L- Signal return, jumper to G
G	Shield/ground	Ground
+	R+	R+ In
-	R-	R- Signal return, jumper to G

### Balanced Input



### Unbalanced Input



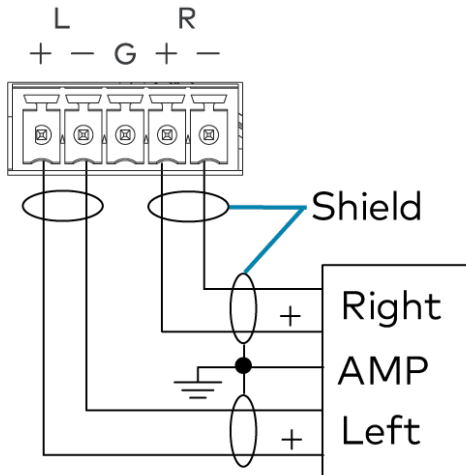
### Balanced/Unbalanced Audio Output

Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

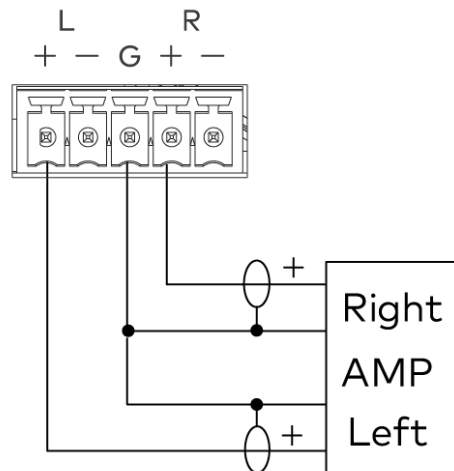
Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground

Pin Label	Balanced Wiring	Unbalanced Wiring
+	R+	R+ Out
-	R-	Open

### Balanced Output



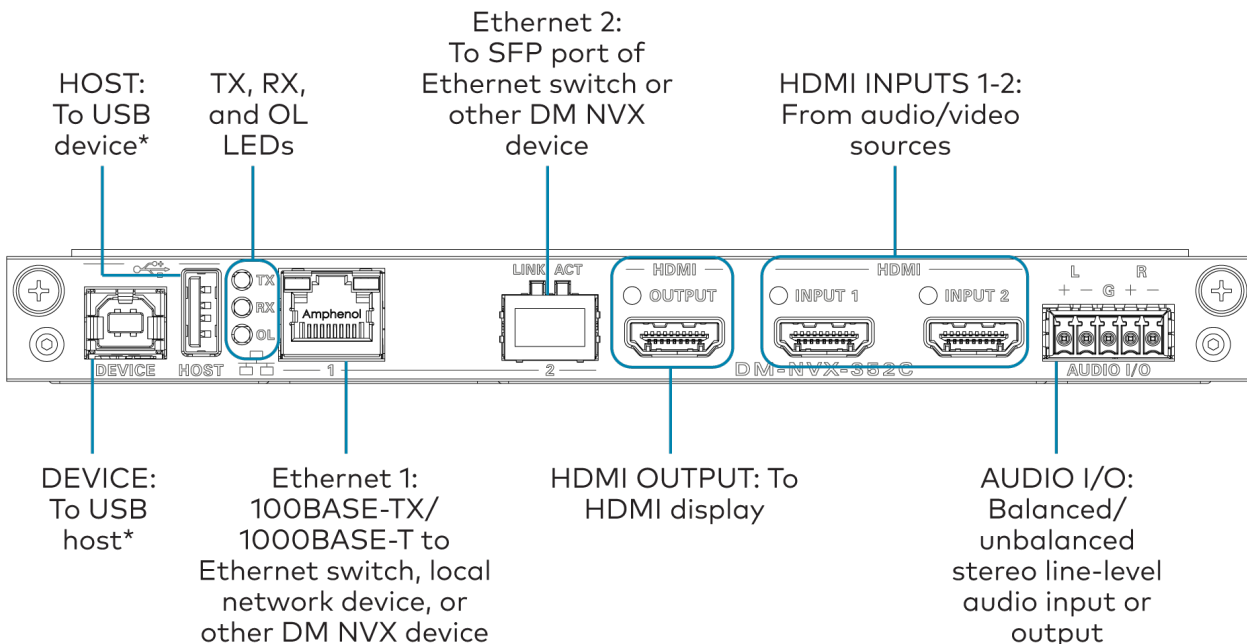
### Unbalanced Output



## Connect the DM-NVX-352C

Connect the device as shown in the following illustrations.

### Front Panel (DM-NVX-352C)

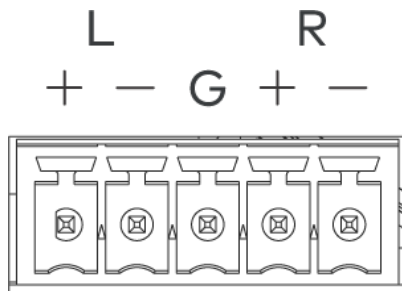


\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio input or output.

### AUDIO Connector

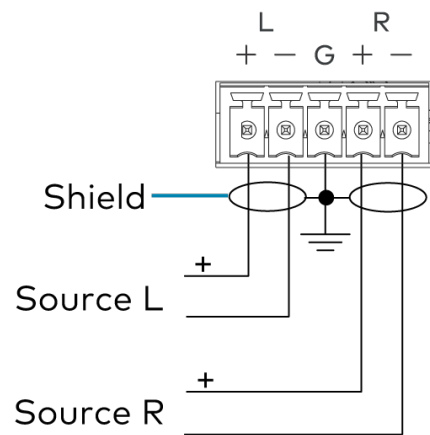


### Balanced/Unbalanced Audio Input

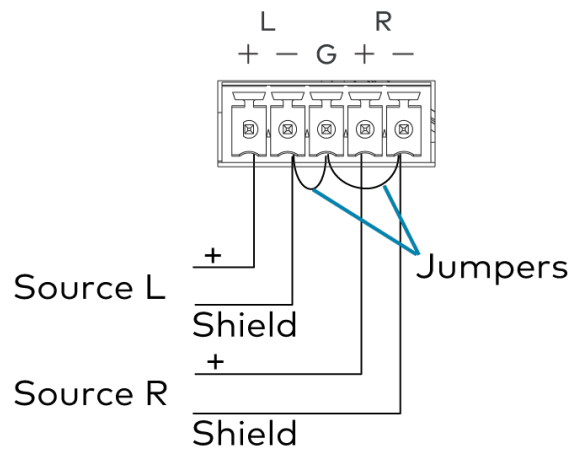
Refer to the following table and diagrams for balanced and unbalanced input pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ In
-	L-	L- Signal return, jumper to G
G	Shield/ground	Ground
+	R+	R+ In
-	R-	R- Signal return, jumper to G

### Balanced Input



### Unbalanced Input

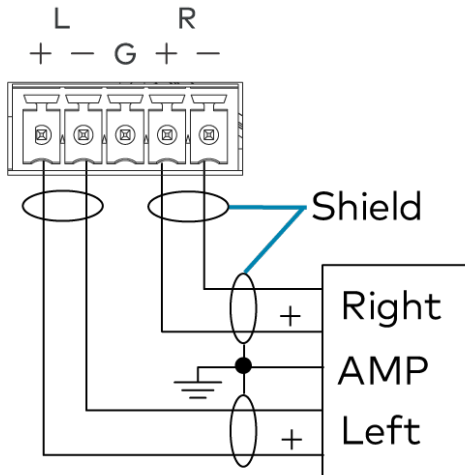


### Balanced/Unbalanced Audio Output

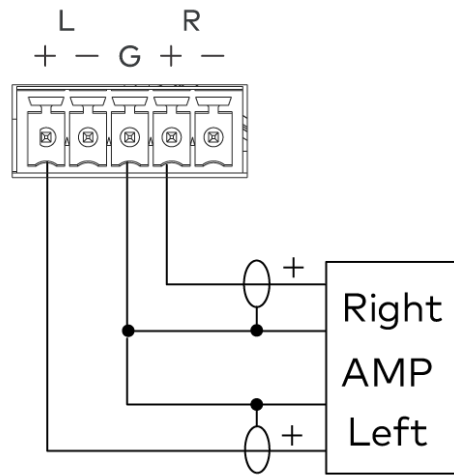
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

### Balanced Output



### Unbalanced Output



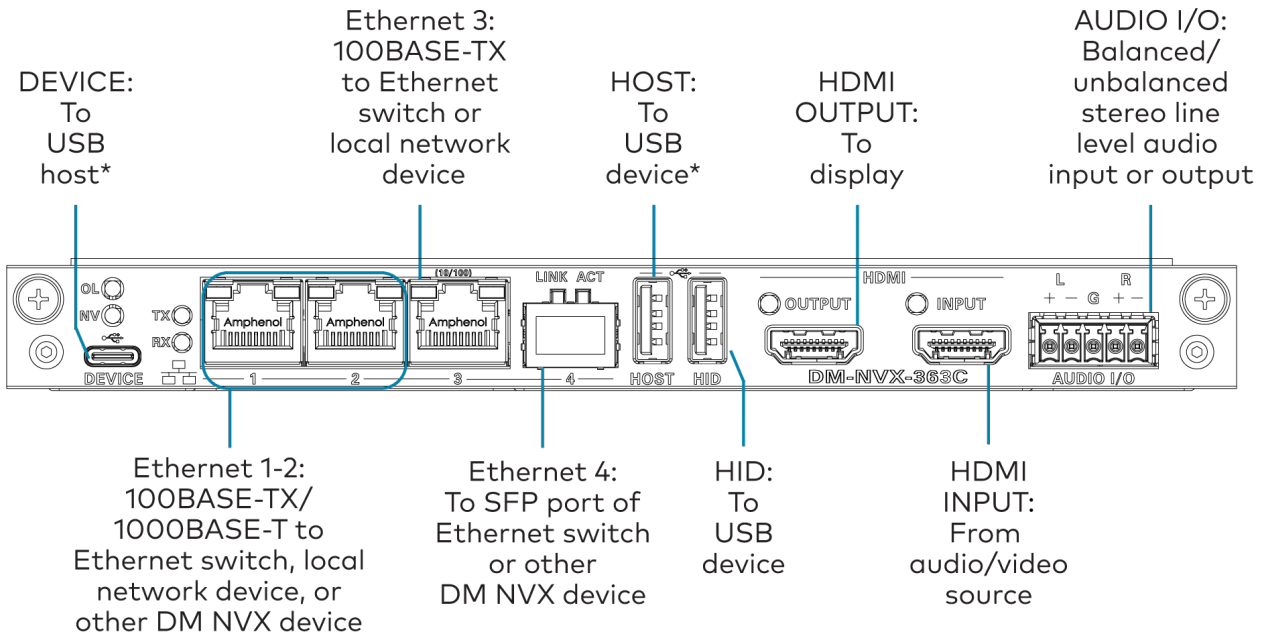
## Connect the DM-NVX-360C and DM-NVX-363C

Connect the device as shown in the following illustrations.

#### NOTES:

- The DM-NVX-360C and DM-NVX-363C each provide four Ethernet ports.
  - Ethernet port 1 and 2 are 100BASE-TX/1000BASE-T ports.
  - Ethernet port 3 is a 100BASE-TX port that can be used to connect to a dedicated audio network or to a local network device.
  - Ethernet port 4 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - Ethernet ports 1, 2, and 4 can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

## Front Panel (DM-NVX-360C and DM-NVX-363C)



\*The device can be configured to use either the **DEVICE** port or the **HOST** port. Both ports cannot be used simultaneously.

## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio input or output.

### AUDIO Connector



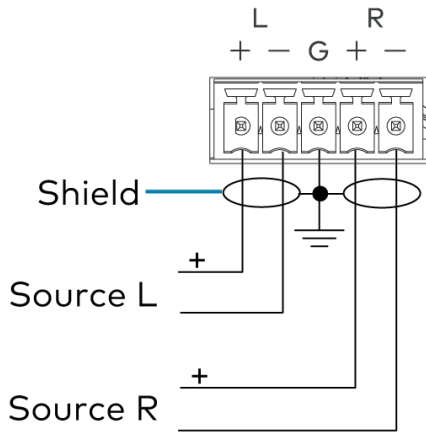
### Balanced/Unbalanced Audio Input

Refer to the following table and diagrams for balanced and unbalanced input pin assignments and wiring.

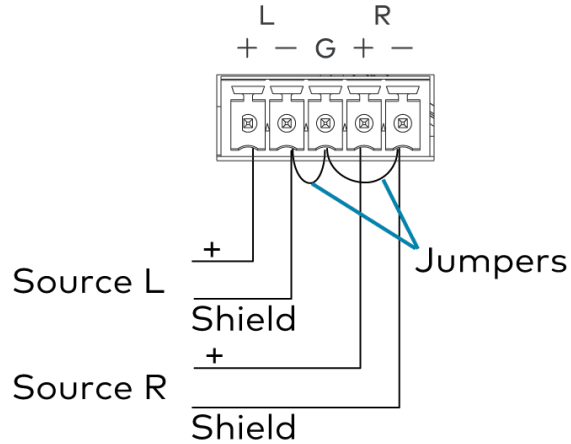
Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ In
-	L-	L- Signal return, jumper to G
G	Shield/ground	Ground
+	R+	R+ In
-	R-	R- Signal return, jumper to G



## Balanced Input



## Unbalanced Input

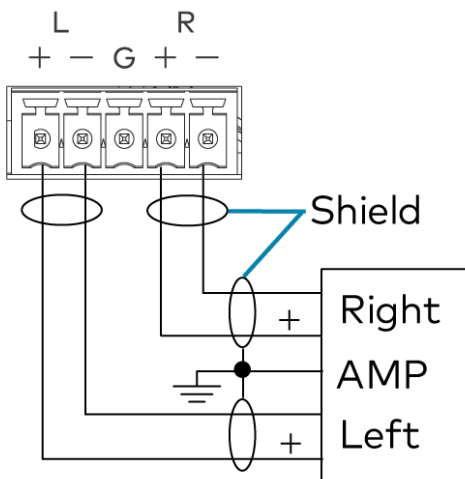


### Balanced/Unbalanced Audio Output

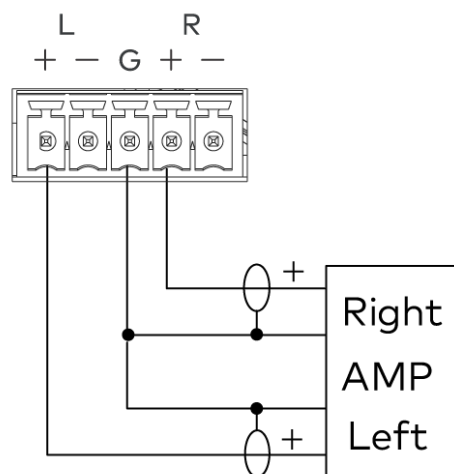
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

## Balanced Output



## Unbalanced Output



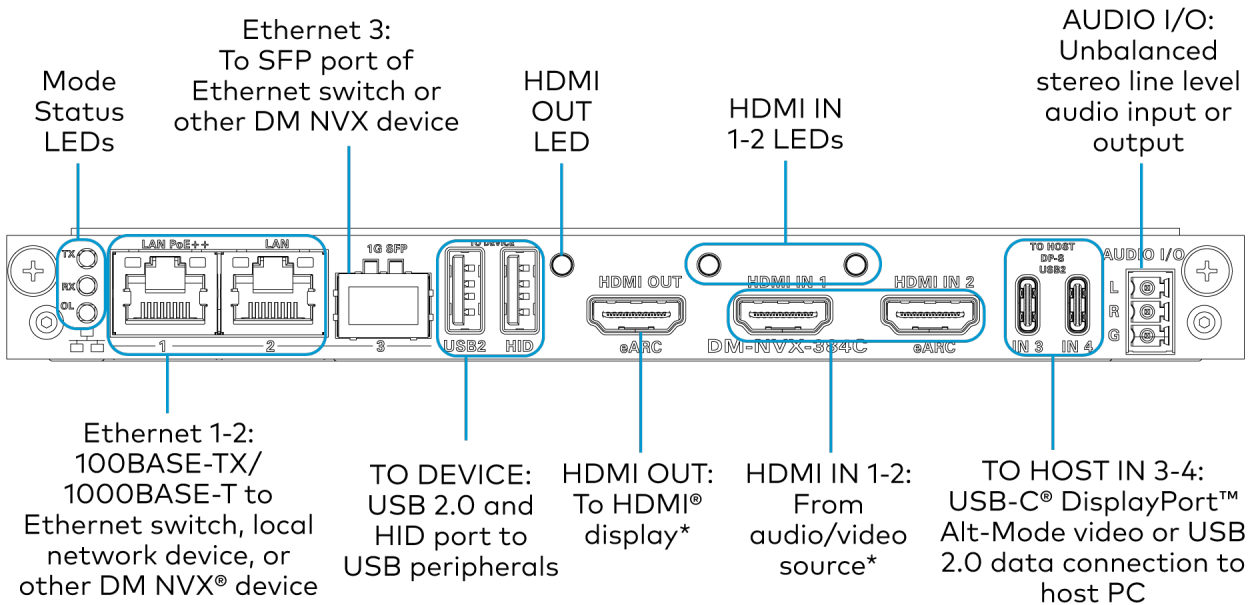
## Connect the DM-NVX-384C

Connect the device as shown in the following illustrations.

### NOTES:

- The DM-NVX-384C provides three Ethernet ports.
  - Ethernet ports 1 and 2 are 100BASE-TX/1000BASE-T ports.
  - Ethernet port 3 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - All Ethernet ports can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

### Front Panel (DM-NVX-384C)



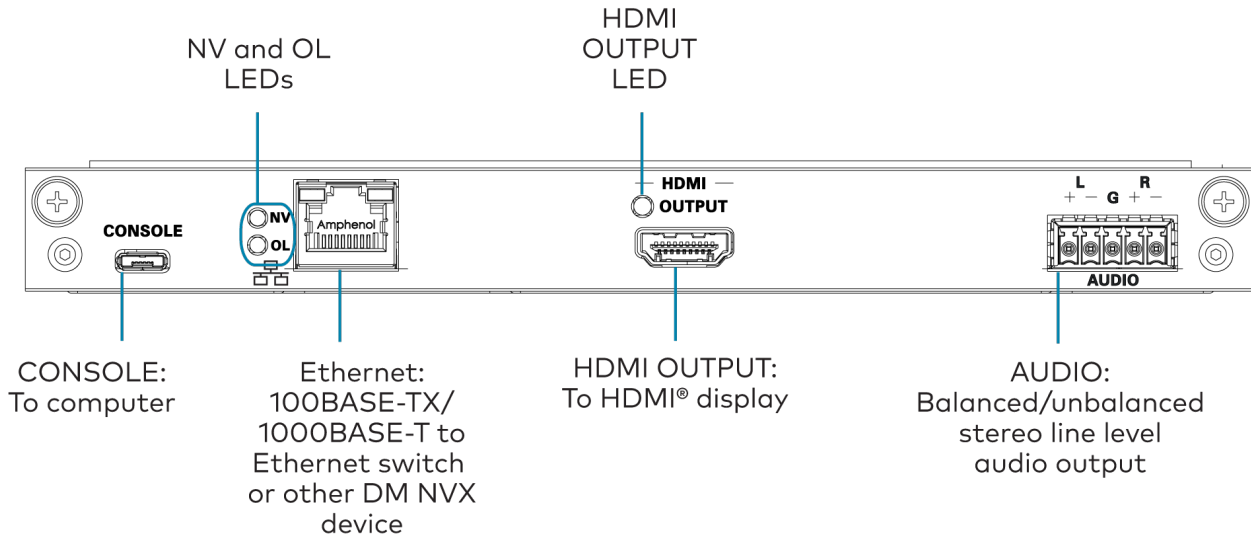
\*eARC functionality is reserved for future use.

## Connect the DM-NVX-D30C

Connect the device as shown in the following illustrations.

**NOTE:** The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.

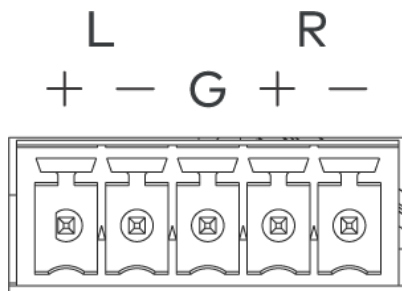
## Front Panel (DM-NVX-D30C)



## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio output.

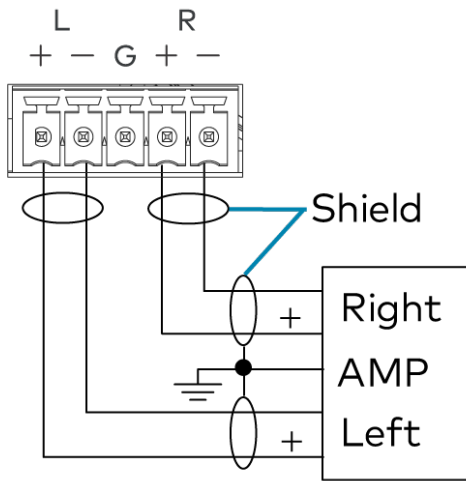
### AUDIO Connector



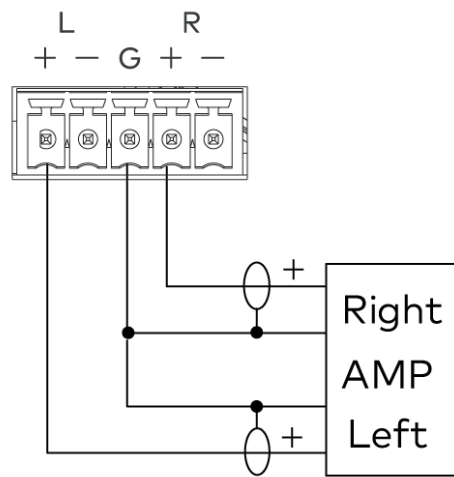
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

## Balanced Output



## Unbalanced Output

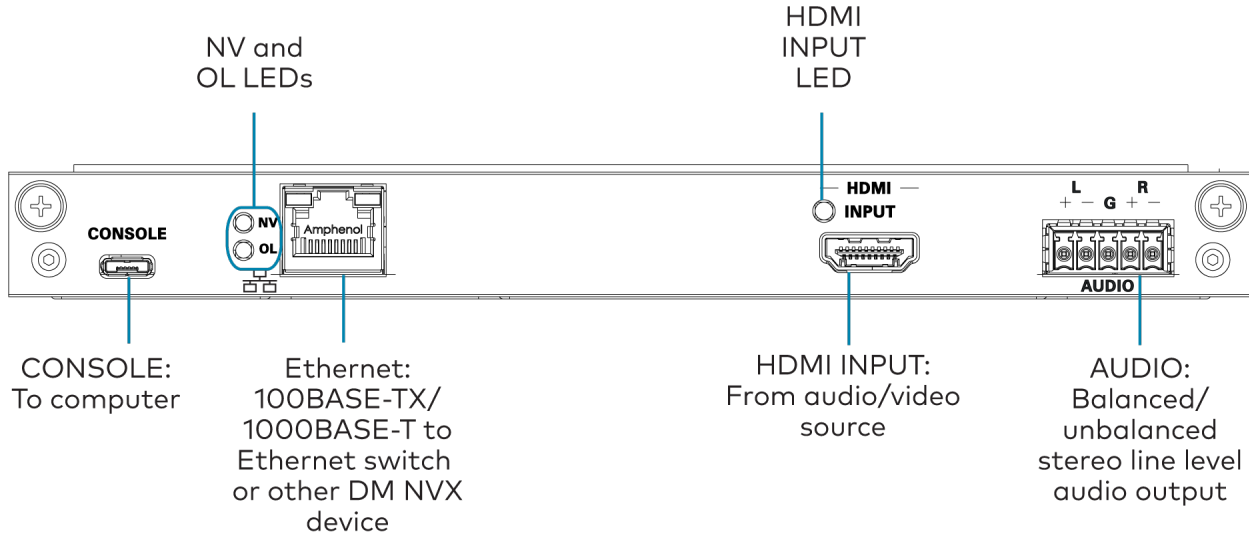


## Connect the DM-NVX-E30C

Connect the device as shown in the following illustrations.

**NOTE:** The Ethernet port must be connected to a 1000BASE-T switch in order to stream network video.

### Front Panel (DM-NVX-E30C)

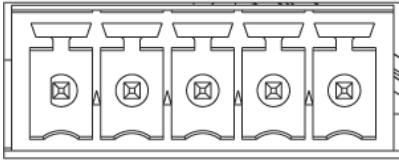


## Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio output.

**AUDIO Connector**

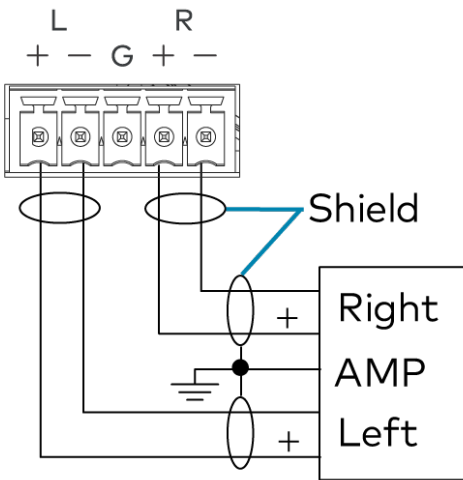
L                      R  
+ - G + -



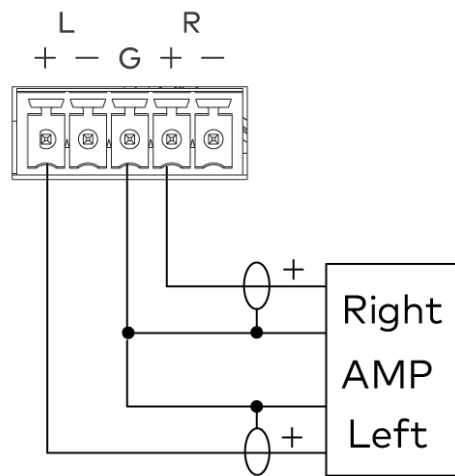
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

**Balanced Output**



**Unbalanced Output**



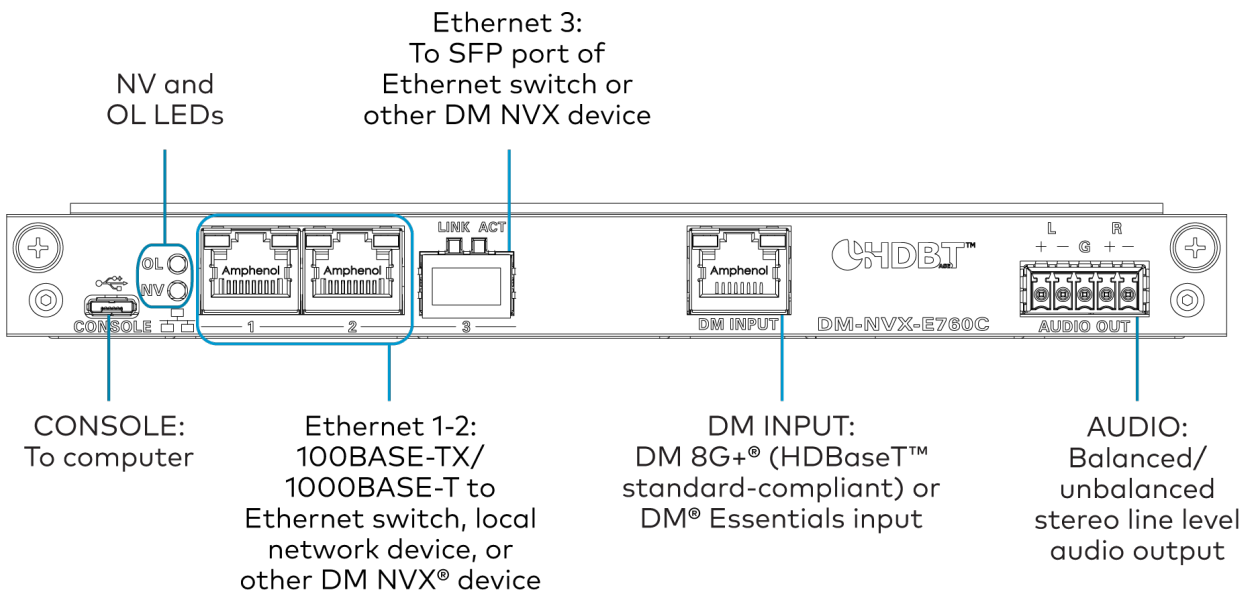
**Connect the DM-NVX-E760C**

Connect the device as shown in the following illustrations.

**NOTES:**

- The DM-NVX-E760C provides three Ethernet ports.
  - Ethernet port 1 and 2 are 100BASE-TX/1000BASE-T ports.
  - Ethernet port 3 is an SFP port, which connects to a fiber-optic network using the appropriate Crestron [SFP-1G](#) series transceiver module (sold separately). Refer to the [SFP-1G Series Installation Guide](#) for information on installing a SFP-1G transceiver module.
  - All Ethernet ports can be used to connect to a 1000BASE-T Ethernet switch to stream network video.
  - Ethernet ports 1 and 2 can also be used to connect to a local network device as a courtesy port or to another DM NVX device for daisy-chain applications.

### Front Panel (DM-NVX-E760C)



### Audio Connector Pin Assignments

The **AUDIO** connector consists of five pins, and can be wired for either balanced or unbalanced analog audio output.

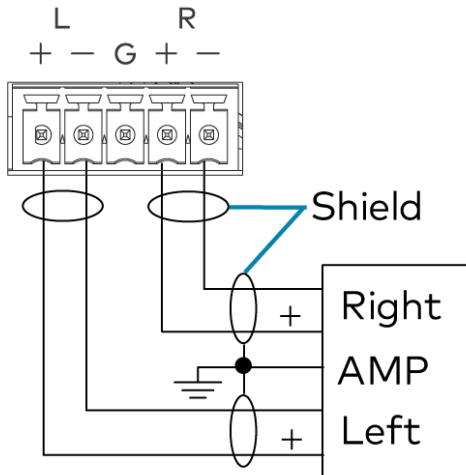
#### AUDIO Connector



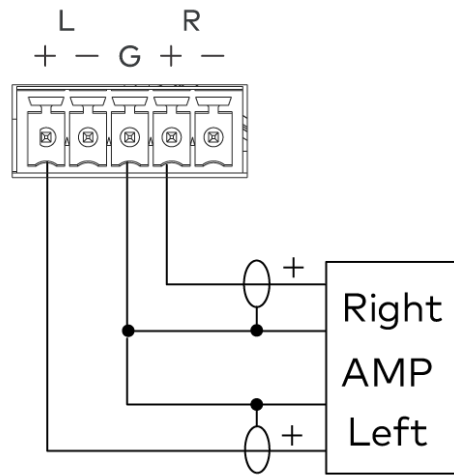
Refer to the following table and diagrams for balanced and unbalanced output pin assignments and wiring.

Pin Label	Balanced Wiring	Unbalanced Wiring
+	L+	L+ Out
-	L-	Open
G	Shield/ground	Common ground
+	R+	R+ Out
-	R-	Open

### Balanced Output



### Unbalanced Output



## Observe the LED Indicators

Available indicators depend on the hardware of each model. Refer to the following sections:

- [DM-NXV-350C and DM-NVX-351C Indicators on page 331](#)
- [DM-NVX-352C Indicators on page 332](#)
- [DM-NVX-360C and DM-NVX-363C Indicators on page 332](#)
- [DM-NVX-384C Indicators on page 333](#)
- [DM-NVX-D30C Indicators on page 333](#)
- [DM-NVX-E30C Indicators on page 334](#)
- [DM-NVX-E760C Indicators on page 334](#)

### DM-NXV-350C and DM-NVX-351C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
OL	Green	The device is online with a control system.

LED Indicator	Color	Meaning
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK	Green	An Ethernet link is established.
Ethernet 3 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUT	Green	A video signal is being transmitted to the HDMI output.
HDMI INPUT 1-2	Green	A video signal is detected at the corresponding HDMI input.

## DM-NVX-352C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
OL	Green	The device is online with a control system.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2 LINK	Green	An Ethernet link is established.
Ethernet 2 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUT	Green	A video signal is being transmitted to the HDMI output.
HDMI INPUT 1-2	Green	A video signal is detected at the corresponding HDMI input.

## DM-NVX-360C and DM-NVX-363C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
OL	Green	The device is online with a control system.
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
NV	Green	(Transmitter mode only) The device is encoding (transmitting) network video.
		(Receiver mode only) The device is decoding (receiving) network video.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.



LED Indicator	Color	Meaning
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3	Green	An Ethernet link is established.
	Flashing green	Data activity is occurring on the Ethernet link.
	Flashing amber	A 100BASE-TX link is established.
Ethernet 4 LINK	Green	An Ethernet link is established.
Ethernet 4 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUTPUT	Green	A video signal is being transmitted to the HDMI output.
HDMI INPUT	Green	A video signal is detected at the corresponding HDMI input.

## DM-NVX-384C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
OL	Green	The device is online with a control system.
TX	Green	The device is in transmitter (encoder) mode.
RX	Green	The device is in receiver (decoder) mode.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK	Green	An Ethernet link is established.
Ethernet 3 ACT	Flashing green	Data activity is occurring on the Ethernet link.
HDMI OUT	Green	A video signal is being transmitted to the HDMI output.
HDMI IN 1	Green	A video signal is detected at the HDMI input.
HDMI IN 2	Green	A video signal is detected at the HDMI input.

## DM-NVX-D30C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
NV	Green	The device is decoding (receiving) network video.
OL	Green	The device is online with a control system.

LED Indicator	Color	Meaning
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI OUTPUT	Green	A video signal is being transmitted to the HDMI output.

## DM-NVX-E30C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
NV	Green	The device is encoding (transmitting) network video.
OL	Green	The device is online with a control system.
Ethernet	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
HDMI INPUT	Green	A video signal is detected at the HDMI input.

## DM-NVX-E760C Indicators

Refer to the following table for information about the LED indicators on the device.

LED Indicator	Color	Meaning
NV	Green	The device is transmitting (encoding) network video.
OL	Green	The device is online with a control system.
Ethernet 1	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 2	Green	An Ethernet link is established.
	Flashing amber	Data activity is occurring on the Ethernet link.
Ethernet 3 LINK	Green	An Ethernet link is established.
Ethernet 3 ACT	Flashing green	Data activity is occurring on the Ethernet link.
DM INPUT	Green	A DM®, HDBaseT™, or DM Essentials link is established.
	Amber	HDCP video is detected at the input.
	Flashing amber	Non-HDCP video is detected at the input.

## Reset the Device

A factory restore may be performed when troubleshooting to restore all factory default settings on the device.

**CAUTION:** These procedures should only be performed as a last resort to recover an unresponsive device. The factory restore procedure will clear certain device settings that cannot be recovered once the procedure is complete. Before performing this procedure, please contact Crestron True

Blue Support via phone, email or chat as described at [www.crestron.com/support](http://www.crestron.com/support).

The restore procedure for a DM NVX encoder/decoder card is performed from the front panel of the DMF-CI-8 chassis. Refer to Restore a Card to the Factory Default Settings in the [DMF-CI-8 Product Manual](#) for more information.

# Configuration

This section provides information on configuring the following products:

- [Configuration \(DM-NVX-35X Models\)](#)
- [Configuration \(DM-NVX-36X Models\)](#)
- [Configuration \(DM-NVX-38X Models\)](#)
- [Configuration \(DM-NVX-D30, E30, and E760 Models\)](#)
- [Configuration \(DM-NVX-D10, D20, D200, E10, and E20 Models\)](#)

# Configuration (DM-NVX-35X Models)

**NOTE:** This section applies to the following models:

- DM-NVX-350
- DM-NVX-350C
- DM-NVX-351
- DM-NVX-351C
- DM-NVX-352
- DM-NVX-352C

## Web Interface Configuration

The web interface of a DM NVX AV-over-IP device allows for the viewing of status information as well as the configuration of local device settings.

### Access the Web Interface

To access the web interface, refer to either of the following:

- [Access the Web Interface with a Web Browser on page 337](#)
- [Access the Web Interface with the Crestron Toolbox™ Application on page 339](#)

The web interface runs in a web browser. The following web browser versions are supported:

#### Operating System and Supported Web Browsers

OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

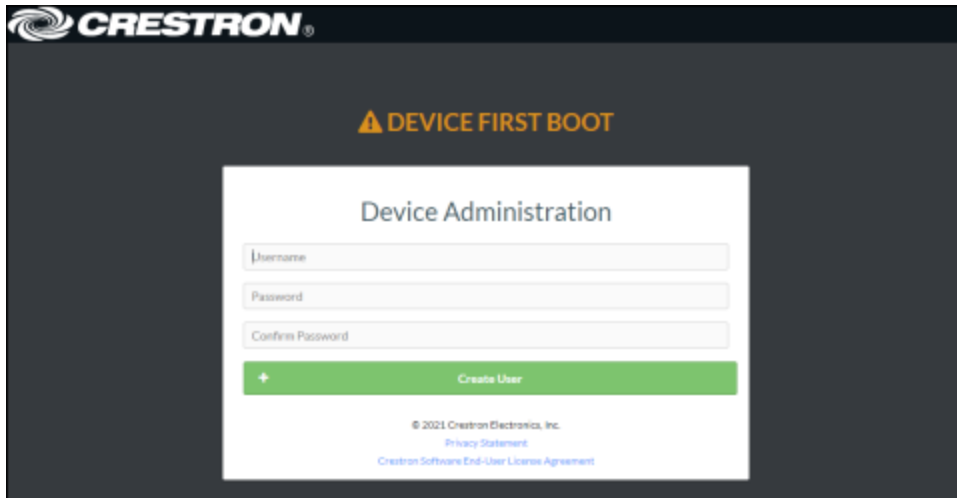
### Access the Web Interface with a Web Browser

To access the web interface:

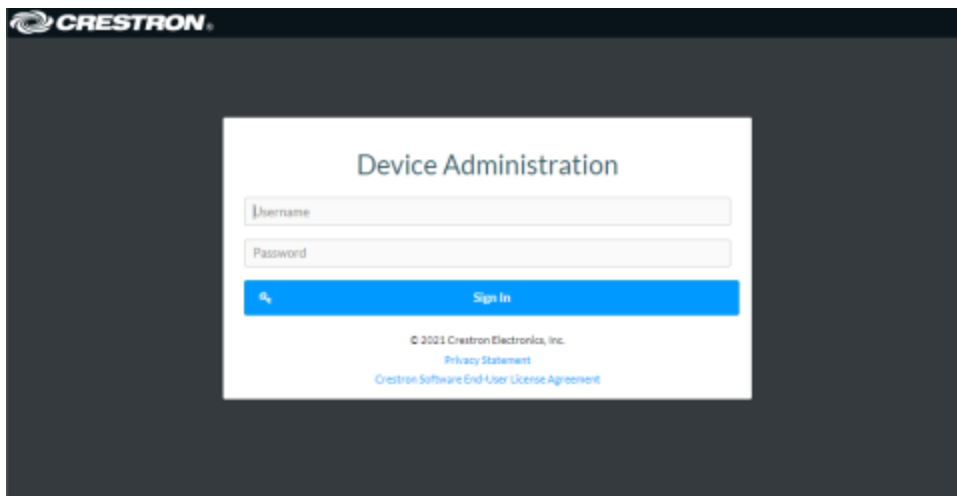
1. Enter the IP address of the DM NVX device into a web browser.

**NOTE:** To obtain the IP address, use the Device Discovery Tool utility in Crestron Toolbox™ software or an IP scanner application.

2. If accessing the device for the first time, a prompt to create an administrator account will be displayed along with a **DEVICE FIRST BOOT** message. To create the first admin account:
  - a. Enter a username in the **Username** field.
  - b. Enter a password in the **Password** field.
  - c. Re-enter the same password in the **Confirm Password** field.




- d. Select **Create User**. A new **Device Administration** page appears with an option to **Sign In** instead of **Create User**.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

## Access the Web Interface with the Crestron Toolbox™ Application

To access the web interface by opening a web browser from the Crestron Toolbox™ application:

1. Open the Crestron Toolbox application.
2. Select **Device Discovery Tool** from the **Tools** menu or select the Device Discovery Tool icon  in the toolbar. Once the utility loads, the DM NVX device will be discovered on the network and listed in the device list on the left side of the screen. The device's host name, IP address, and firmware version are displayed.

**NOTE:** If there is security software running on the computer, a security alert might be displayed when the Crestron Toolbox application attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. Select the device from the discovered devices list.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

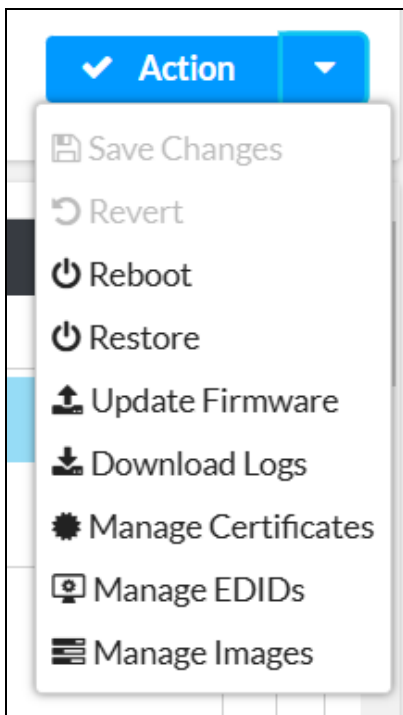
# Action

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-350
- DM-NVX-350C
- DM-NVX-351
- DM-NVX-351C
- DM-NVX-352
- DM-NVX-352C

The **Action** drop-down menu is displayed at the top right side of the web interface and provides quick access to these common device functions:

- [Save Changes on page 341](#)
- [Revert on page 341](#)
- [Reboot on page 341](#)
- [Restore on page 341](#)
- [Update Firmware on page 342](#)
- [Download Logs on page 342](#)
- [Manage Certificates on page 342](#)
- [Manage EDIDs on page 345](#)
- [Manage Images \(Receiver Mode Only\) on page 348](#)





## Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

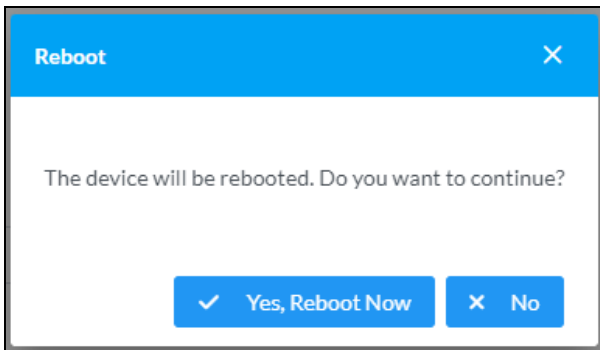
## Revert

Select **Revert** to revert the device back to the last saved configuration.

## Reboot

Certain changes to the settings may require a reboot to take effect. To reboot the device:

1. Select **Reboot** in the **Action** menu. The **Reboot** confirmation message box appears.



2. Select **Yes, Reboot Now** to reboot the device. The **Reboot** status message box appears. Wait for the device reboot to complete before attempting to reconnect to the web interface. Alternatively, select **No** to cancel the reboot operation.

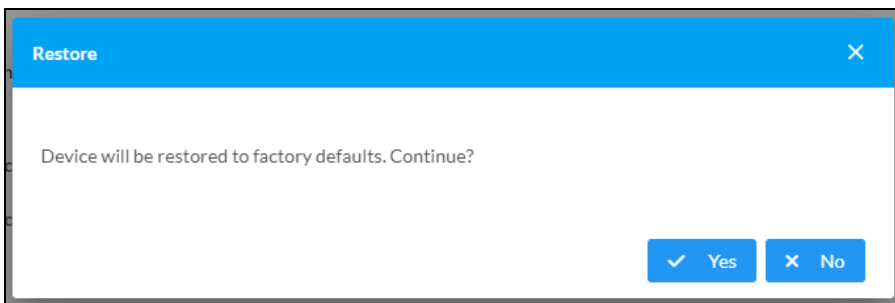
## Restore

The DM NVX device can be restored to factory default settings from the **Action** menu.

**NOTE:** The **Restore** procedure will wipe all settings from the device, including network settings. If a static IP address is set, restoring the device to factory default settings will clear this address and DHCP will be enabled instead.

To restore the device to factory defaults:

1. Select **Restore** in the **Action** menu. The **Restore** confirmation message box appears.



2. Select **Yes** to restore the device to factory default settings. Select **No** to cancel the restore operation. When **Yes** is selected, the **Restore** status message box appears. Wait for the device restore to complete before attempting to reconnect to the web interface.

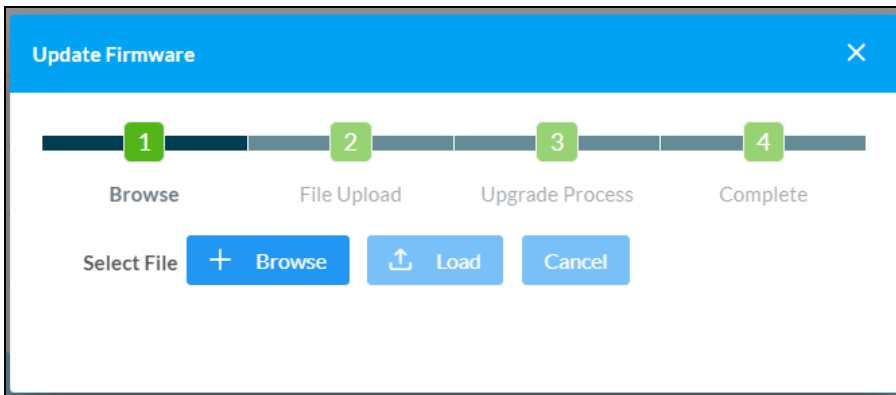
**NOTE:** Once the device is restored, it may have a new IP address. If reconnecting to the original address does not work, use the Device Discovery Tool in Crestron Toolbox software or an IP scanner application to find the device's new IP address.

If the web interface is not accessible, the device can also be restored to factory default settings via a hardware-based procedure (refer to [DM-NVX-350, DM-NVX-351, and DM-NVX-352 Installation on page 262](#)). Card-based DM NVX devices can also be restored from the front panel menu of the DMF-CI-8.

## Update Firmware

To update the firmware of the device:

1. Select **Update Firmware** in the **Action** menu.
2. In the **Update Firmware** window that appears, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Update Firmware** window.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The firmware update is now complete, and the web interface will return to the main log-in page.

## Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

## Manage Certificates

Select **Manage Certificates** in the **Action** menu to open the **Manage Certificates** window. Use this window to add or remove certificates used in 802.1x authentication and other protected network functions.

**Manage Certificates** ✕

Root
Intermediate
Machine
Web Server

Name	Expiry Date	Actions
AAA Certificate Services	Dec 31 23:59:59 2028	
AC RAIZ FNMT-RCM	Jan 1 00:00:00 2030	
AC RAIZ FNMT-RCM SERVIDORES SEGUROS	Dec 20 09:37:33 2043	
ACCVRAIZ1	Dec 31 09:37:37 2030	
Actalis Authentication Root CA	Sep 22 11:22:02 2030	
AffirmTrust Commercial	Dec 31 14:06:06 2030	
AffirmTrust Networking	Dec 31 14:08:24 2030	

<< < 1 2 3 4 5 > >>

Add Root Certificate

The following certificate tabs are available in the **Manage Certificates** window:

- **Root:** The Root certificate is used by the DM NVX device to validate the network's authentication server. The device has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate:** The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine:** The Machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM NVX device. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1x, only one machine certificate can reside on the device.
- **Web Server:** The Web Server certificate is a digital file that contains information about the identity of the web server.

## Add Certificates

To add a certificate:

1. Select the corresponding certificate tab.
2. Select **Add [Type] Certificate**.


3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

**NOTE:** If the selected certificate is a machine certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list in the **Manage Certificates** window, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

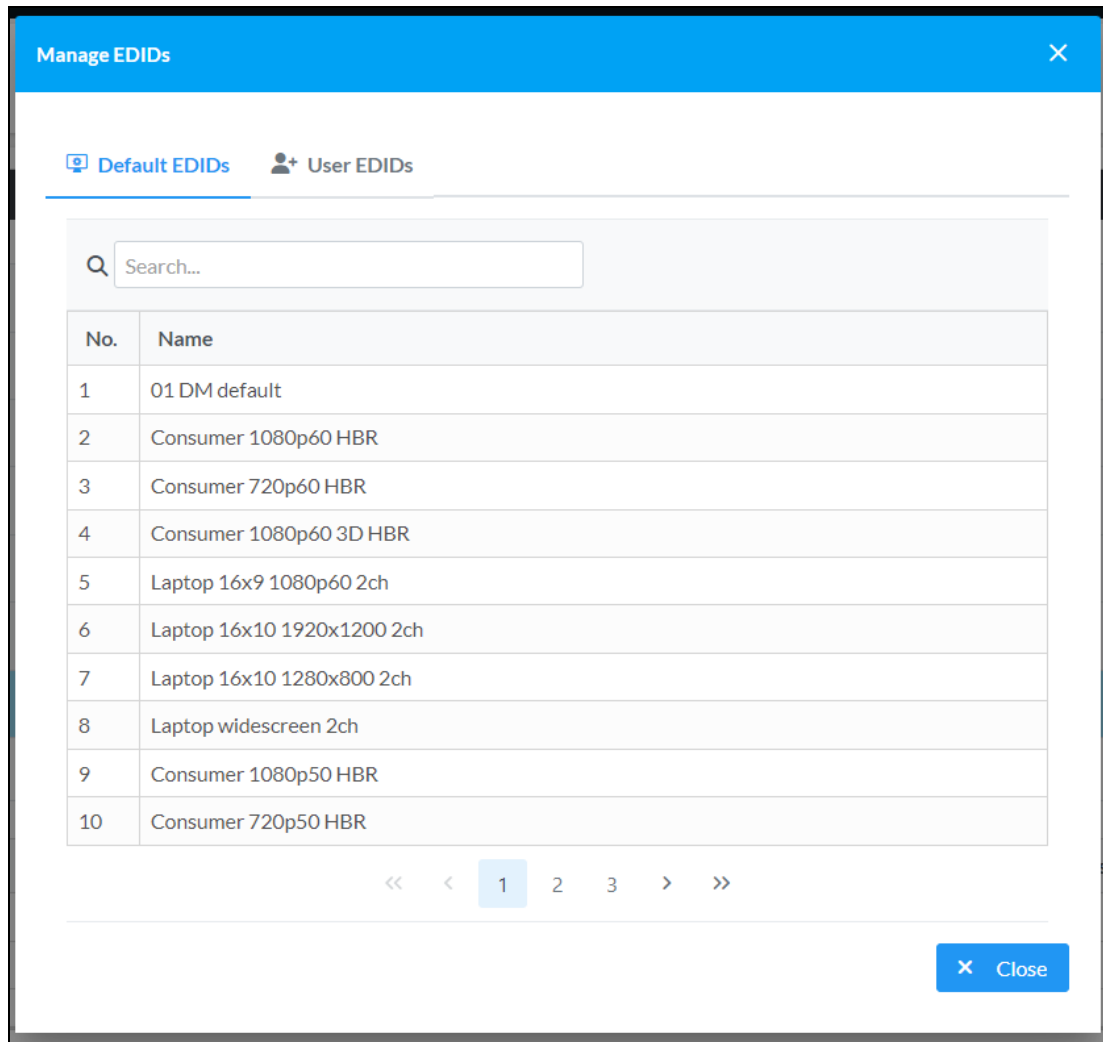
## Delete Certificates

To delete a certificate:

1. Select the corresponding certificate tab.
2. Select the trashcan icon  in the **Actions** column and the row of the certificate to be deleted.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

## Manage EDIDs

Select **Manage EDIDs** in the **Action** menu to open the **Manage EDIDs** window. Use this window to add, remove, or browse which EDIDs are available for the AV inputs and outputs of the DM NVX device.



The screenshot shows the 'Manage EDIDs' window with a blue header and a close button. Below the header are two tabs: 'Default EDIDs' (selected) and 'User EDIDs'. A search bar is located above a table of EDIDs. The table has two columns: 'No.' and 'Name'. Below the table is a pagination control showing page 1 of 3, and a 'Close' button in the bottom right corner.

No.	Name
1	01 DM default
2	Consumer 1080p60 HBR
3	Consumer 720p60 HBR
4	Consumer 1080p60 3D HBR
5	Laptop 16x9 1080p60 2ch
6	Laptop 16x10 1920x1200 2ch
7	Laptop 16x10 1280x800 2ch
8	Laptop widescreen 2ch
9	Consumer 1080p50 HBR
10	Consumer 720p50 HBR

The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM NVX device as part of the firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.

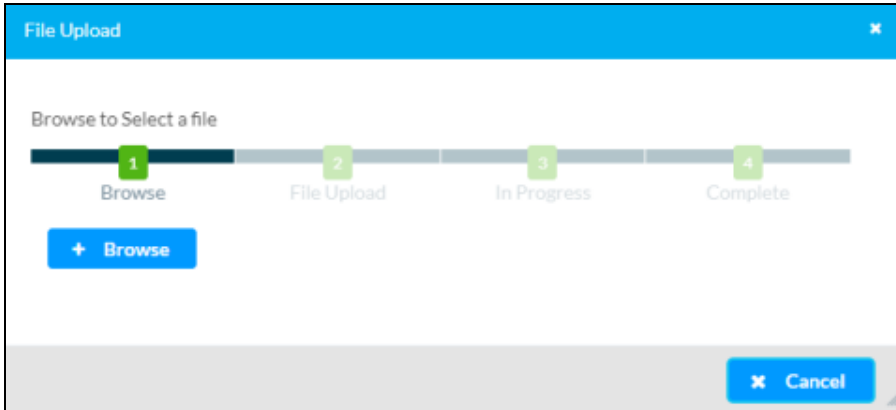
The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**.

The screenshot shows a window titled "Manage EDIDs" with a close button in the top right corner. Below the title bar, there are two tabs: "Default EDIDs" and "User EDIDs". The "User EDIDs" tab is selected and highlighted with a blue border. Below the tabs, there is a search bar with a magnifying glass icon and the text "Search...". To the right of the search bar is a blue button with a plus sign and the text "Add EDID". Below the search bar is a table with three columns: "No.", "Name", and "Actions". The table is currently empty, and the text "No records found" is centered in the table area. Below the table is a pagination control with the following elements: a double left arrow, a left arrow, a box containing the number "1", a right arrow, and a double right arrow. At the bottom right of the window is a blue button with a close icon and the text "Close".

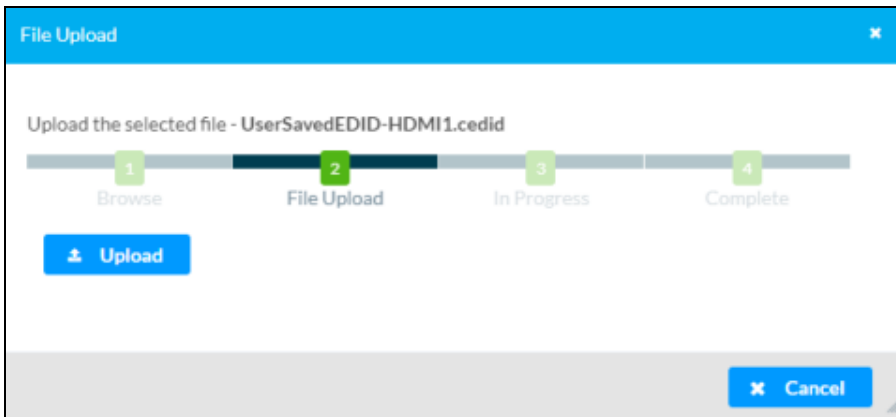
To add a **User EDID** file:

1. Select **+ Add EDID** at the top right of the table. The **File Upload** screen will appear.
2. Select **+ Browse**. Locate the desired .cedid file, then select **Upload** to upload it to the DM NVX device.

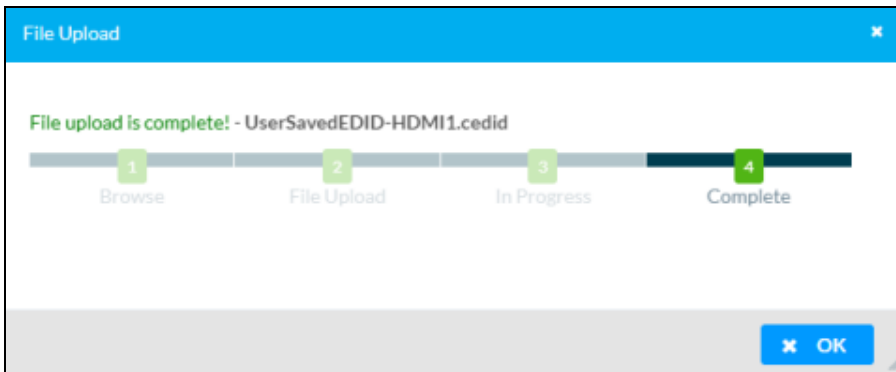
**Browse for and select a .cedid file**



**Upload the selected file**



**Wait for the upload to complete, then select OK**

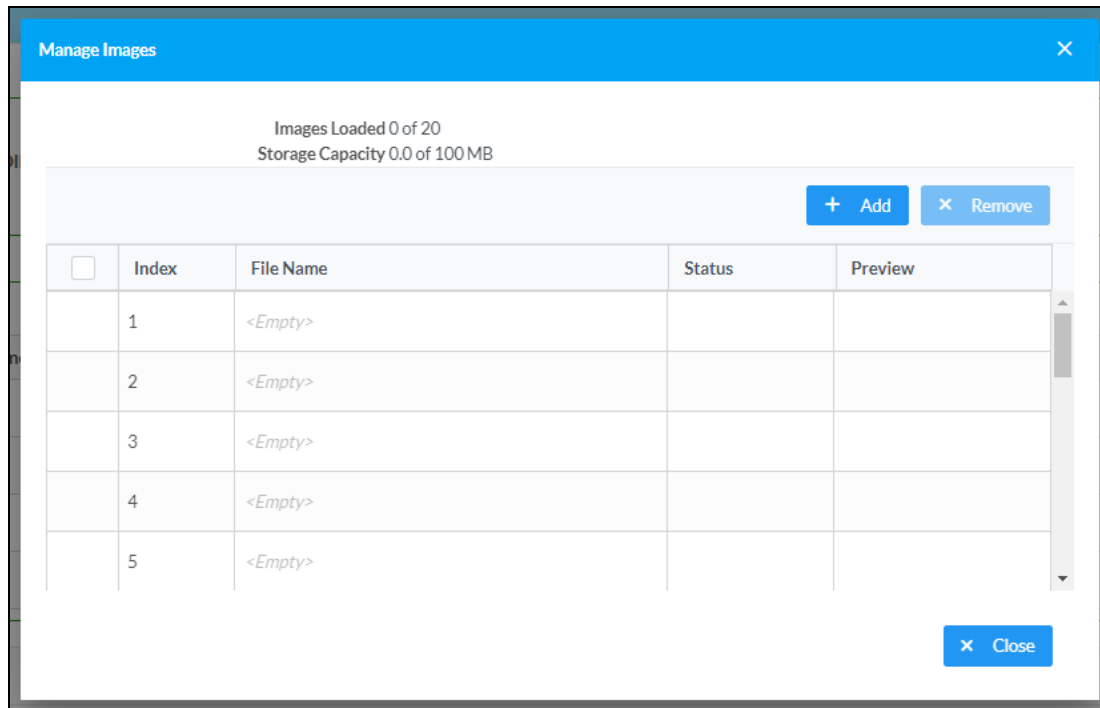


3. Select **OK** to return to the **Manage EDIDs** window. The uploaded User EDID is now displayed in the table.

To remove a **User EDID** file, select **Delete** in its table row.

## Manage Images (Receiver Mode Only)

Select **Manage Images** in the **Action** menu to open the **Manage Images** window. Use this window to add or remove images that can be displayed as backgrounds for the on-screen display feature of the DM NVX device.



To add an image:

1. Select **+ Add**. A **File Upload** window appears.
2. Select **+ Browse**. Locate the desired .jpeg, .jpg, or .png image file, then select **Upload** to upload it to the DM NVX device. The uploaded image will now appear in the **Manage Images** table with a preview and a **Ready** status message. Refer to the **Outputs** heading under [Settings on page 376](#) for information on setting a background image.

To delete an image, select its entry in the table then select **X Remove**.

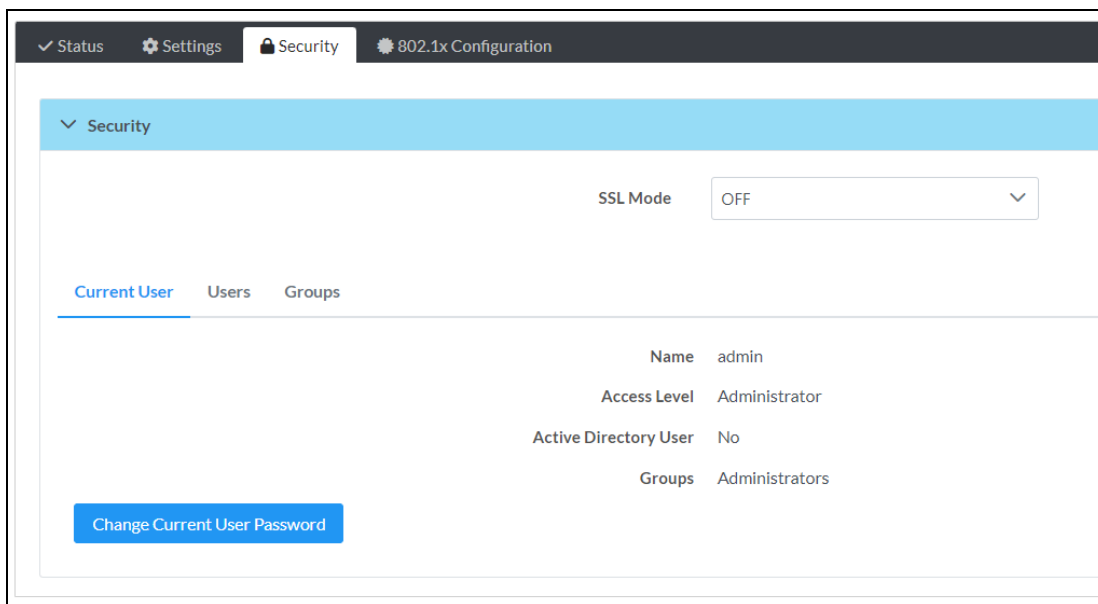


# Security

**NOTE:** This section applies to the following models:

- DM-NVX-350
- DM-NVX-350C
- DM-NVX-351
- DM-NVX-351C
- DM-NVX-352
- DM-NVX-352C

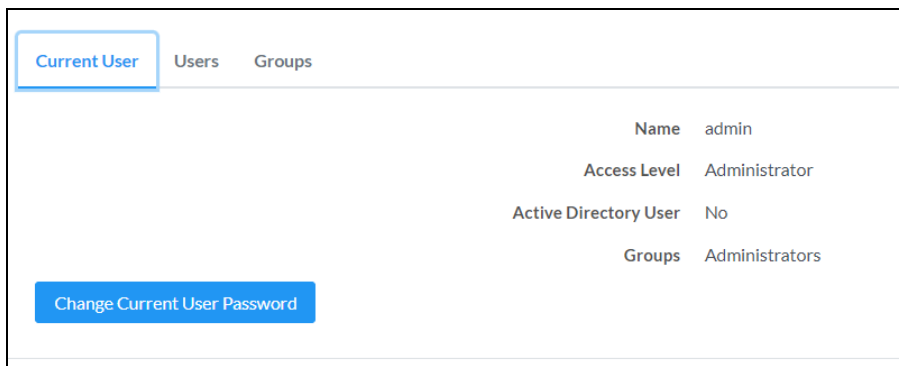
Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM NVX device functions. By default, security is disabled.



Select **Encrypt and Validate**, **Encrypt**, or **OFF** from the **SSL Mode** drop-down menu to specify whether to use encryption. By default, **SSL Mode** is set to **OFF**.

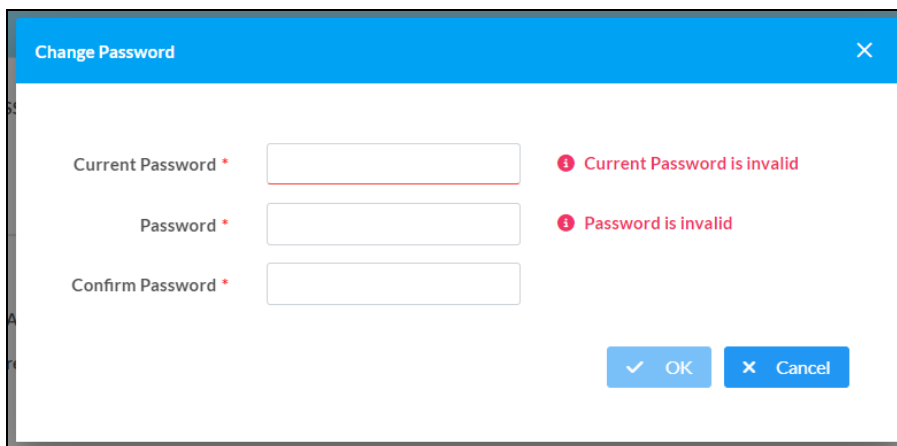
## Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



To change the password for the current user account:

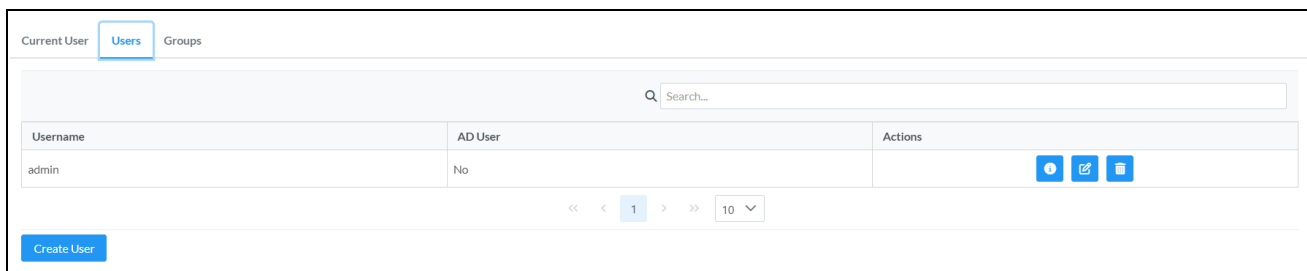
1. Select **Change Current User Password**.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

## Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.





Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

- **Username:** Displays the name of the user.
- **AD User:** Displays whether the user requires authentication using Active Directory.

Select the information icon  in the **Actions** column to view detailed user information, or select the delete icon  to delete a user.

To create a new user, select **Create User**.

## Create a New Local User

To create a new local user:

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
  - c. Assign the access level by selecting one or more user groups from the **Groups** drop-down list.

**NOTE:** Make sure that the **Active Directory User** toggle is set to the left (disabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Grant Access to an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM NVX device, or add the Active Directory group(s) that they are a member of to the DM NVX device. Refer to [Grant Access to an Active Directory Group on page 354](#) for steps on granting access to a group.

To grant access to an Active Directory user directly:

1. Select **Create User**.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Select one or more groups from the **Groups** drop-down list.


**NOTE:** Make sure that the **Active Directory User** toggle is set to the right (enabled).

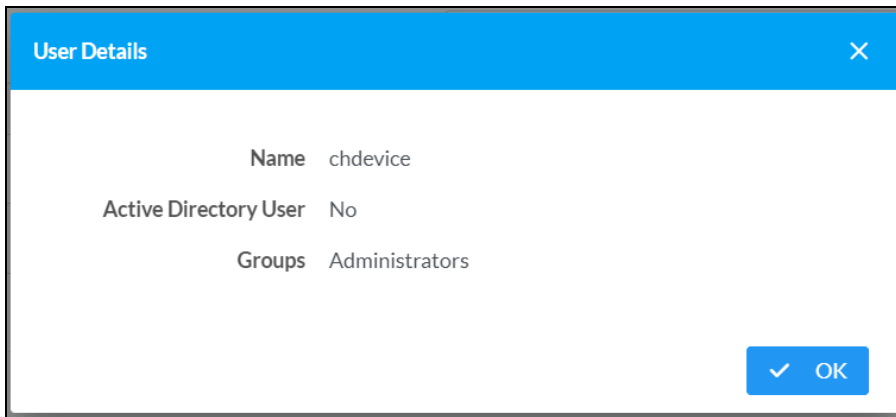
3. Select **OK** to save or select **Cancel** to cancel the changes.

## Delete a User

To delete a user, select the trashcan icon  in the **Actions** column. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

## View User Details

Select the information icon  in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.




The fields displayed in the **User Details** window are:

- **Name:** Displays the name of the selected user.
- **Active Directory User:** Displays whether the user is an Active Directory user.
- **Group:** Displays group(s) the selected user is part of.

Select **OK** to close the **User Details** window and return to the **Users** tab.

## Update User Details

To update the details for an existing user:

1. Select the edit icon  in the **Actions** column to update information for the selected user.
2. Set the **Active Directory User** toggle to the right if the user is an Active Directory user, or to the left if the user is not.
3. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
4. Select one or more groups to assign the user to from the **Groups** drop-down list. Deselect any groups to remove the user from those groups.

**NOTE:** After a user is removed from a group, they lose any access rights associated with that group.

5. Select **OK** to save or select **Cancel** to cancel the changes.

**NOTE:** The **Name** field is a read-only field that displays the username for the selected user. To change a username, the user must be deleted and a new user must be added.

## Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



Group Name	AD Group	Access Level	Actions
Administrators	No	Administrator	
Connects	No	Connect	
Operators	No	Operator	
Programmers	No	Programmer	
Users	No	User	

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **AD Group:** Displays whether the group requires authentication using Active Directory.
- **Access Level:** Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the information icon  in the **Actions** column to view detailed group information, or select the delete icon  to delete a group.

Select **Create Group** in the **Groups** tab to create new group.

## Create a Local Group

To create a local group:

1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the left (disabled).

3. Select **OK** to save. Select **Cancel** to cancel the changes.

## Grant Access to an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing Active Directory group.

Once the group is added, all members of that group will have access to the DM NVX device.

To grant access to an Active Directory group:

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
  - a. Enter the group name in the **Name** field (for example, "Engineering Group").


**NOTE:** Group names are case sensitive, and a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the right (enabled).


4. Select **OK** to save. Select **Cancel** to cancel the changes.

## Delete a Group

Select the trashcan icon  in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

## View Group Details

Select the information icon  in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group:

- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and return to the **Groups** tab.

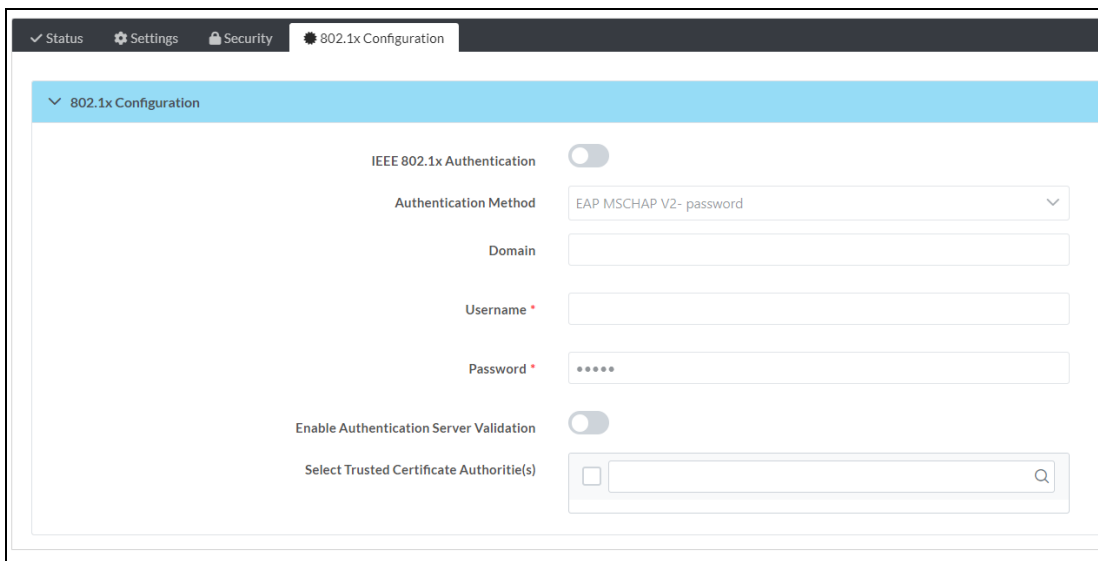
# 802.1X Configuration

**NOTE:** This section applies to the following models:

- DM-NVX-350
- DM-NVX-350C
- DM-NVX-351
- DM-NVX-351C
- DM-NVX-352
- DM-NVX-352C

DM NVX devices have built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs, relying on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

The **802.1X Configuration** page can be accessed at any time by selecting the **802.1X Configuration** tab of the interface.



The screenshot shows the '802.1X Configuration' page in a web interface. The page has a dark header with navigation tabs: 'Status', 'Settings', 'Security', and '802.1X Configuration'. Below the header, there is a light blue section titled '802.1X Configuration'. The main content area contains the following configuration options:

- IEEE 802.1X Authentication:** A toggle switch that is currently turned off.
- Authentication Method:** A dropdown menu with 'EAP MSCHAP V2- password' selected.
- Domain:** An empty text input field.
- Username \*:** An empty text input field.
- Password \*:** A text input field with masked characters (dots).
- Enable Authentication Server Validation:** A toggle switch that is currently turned off.
- Select Trusted Certificate Authority(ies):** A search box with a magnifying glass icon and a small square icon to the left.

## Configure the Device for 802.1X Authentication

To configure the DM NVX device for 802.1X Authentication:

1. Set the **IEEE 802.1X Authentication** toggle to the right. This will enable all options on the 802.1X dialog.
2. Select an **Authentication Method**: Choose between **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.



3. Do one of the following:
  - a. If **EAP-TLS Certificate** was selected: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
  - b. If EAP-MSCHAP V2 Password was selected: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields, respectively. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded onto the DM NVX device.

Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu. Refer to [Action on page 340](#) for more information on the **Manage Certificates** function.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and reboot it. Select **Revert** to cancel any changes.

# Configuration (DM-NVX-36X Models)

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

## Web Interface Configuration

The web interface of a DM NVX AV-over-IP device allows for the viewing of status information as well as the configuration of local device settings.

### Access the Web Interface

To access the web interface, refer to either of the following:

- [Access the Web Interface with a Web Browser on page 358](#)
- [Access the Web Interface with the Crestron Toolbox™ Application on page 360](#)

The web interface runs in a web browser. The following web browser versions are supported:

#### Operating System and Supported Web Browsers

OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

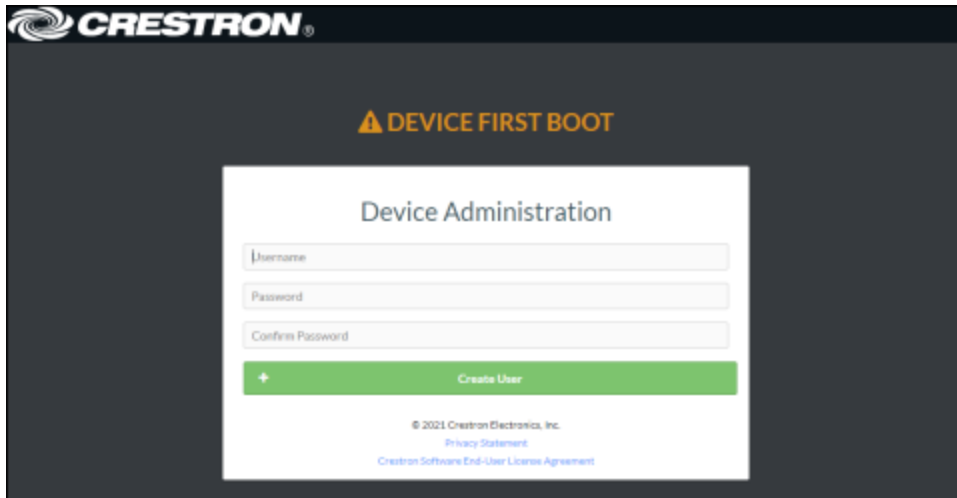
### Access the Web Interface with a Web Browser

To access the web interface:

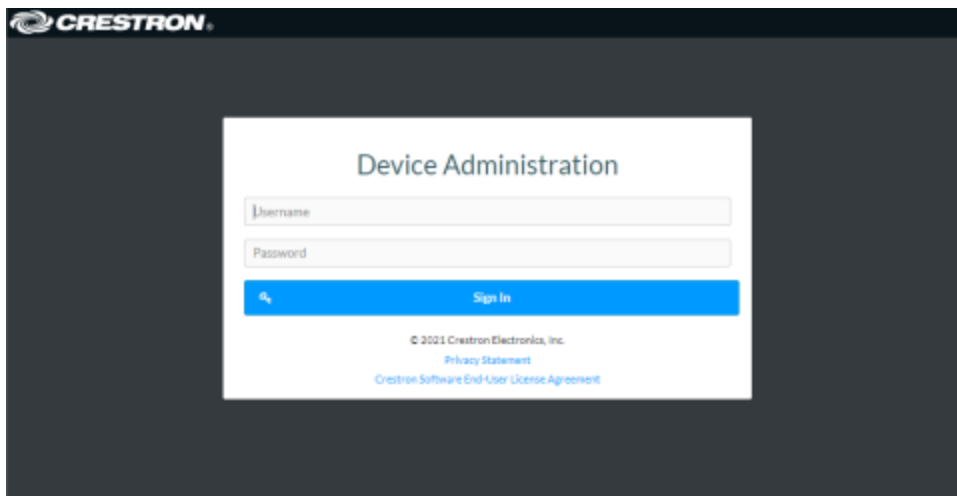
1. Enter the IP address of the DM NVX device into a web browser.

**NOTE:** To obtain the IP address, use the Device Discovery Tool utility in Crestron Toolbox™ software or an IP scanner application.

2. If accessing the device for the first time, a prompt to create an administrator account will be displayed along with a **DEVICE FIRST BOOT** message. To create the first admin account:
  - a. Enter a username in the **Username** field.
  - b. Enter a password in the **Password** field.
  - c. Re-enter the same password in the **Confirm Password** field.




- d. Select **Create User**. A new **Device Administration** page appears with an option to **Sign In** instead of **Create User**.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

## Access the Web Interface with the Crestron Toolbox™ Application

To access the web interface by opening a web browser from the Crestron Toolbox™ application:

1. Open the Crestron Toolbox application.
2. Select **Device Discovery Tool** from the **Tools** menu or select the Device Discovery Tool icon  in the toolbar. Once the utility loads, the DM NVX device will be discovered on the network and listed in the device list on the left side of the screen. The device's host name, IP address, and firmware version are displayed.

**NOTE:** If there is security software running on the computer, a security alert might be displayed when the Crestron Toolbox application attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. Select the device from the discovered devices list.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

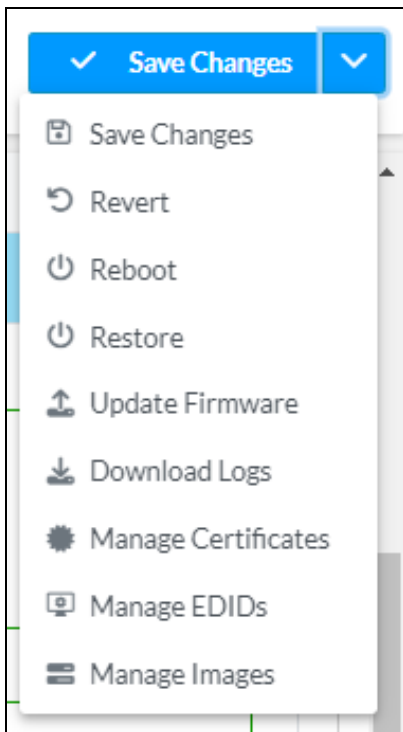
# Action

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

The **Action** drop-down menu is displayed at the top right side of the web interface and provides quick access to these common device functions:

- [Save Changes on page 362](#)
- [Revert on page 362](#)
- [Reboot on page 362](#)
- [Restore on page 362](#)
- [Update Firmware on page 363](#)
- [Download Logs on page 363](#)
- [Manage Certificates on page 363](#)
- [Manage EDIDs on page 366](#)
- [Manage Images \(Receiver Mode Only\) on page 369](#)



## Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

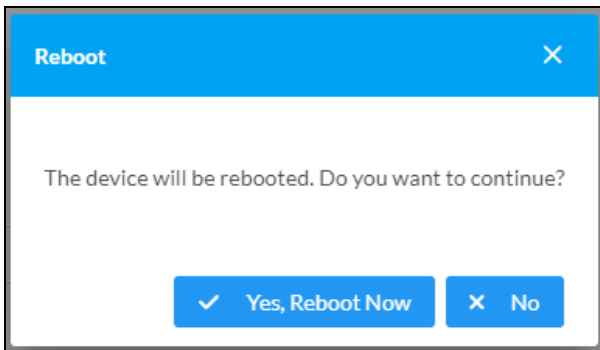
## Revert

Select **Revert** to revert the device back to the last saved configuration.

## Reboot

Certain changes to the settings may require a reboot to take effect. To reboot the device:

1. Select **Reboot** in the **Action** menu. The **Reboot** confirmation message box appears.



2. Select **Yes, Reboot Now** to reboot the device. The **Reboot** status message box appears. Wait for the device reboot to complete before attempting to reconnect to the web interface. Alternatively, select **No** to cancel the reboot operation.

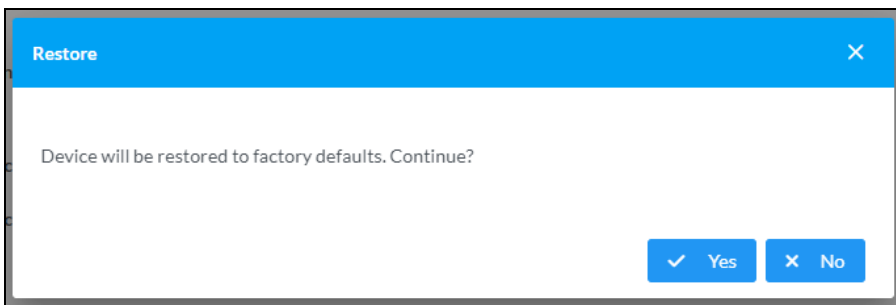
## Restore

The DM NVX device can be restored to factory default settings from the **Action** menu.

**NOTE:** The **Restore** procedure will wipe all settings from the device, including network settings. If a static IP address is set, restoring the device to factory default settings will clear this address and DHCP will be enabled instead.

To restore the device to factory defaults:

1. Select **Restore** in the **Action** menu. The **Restore** confirmation message box appears.



2. Select **Yes** to restore the device to factory default settings. Select **No** to cancel the restore operation. When **Yes** is selected, the **Restore** status message box appears. Wait for the device restore to complete before attempting to reconnect to the web interface.

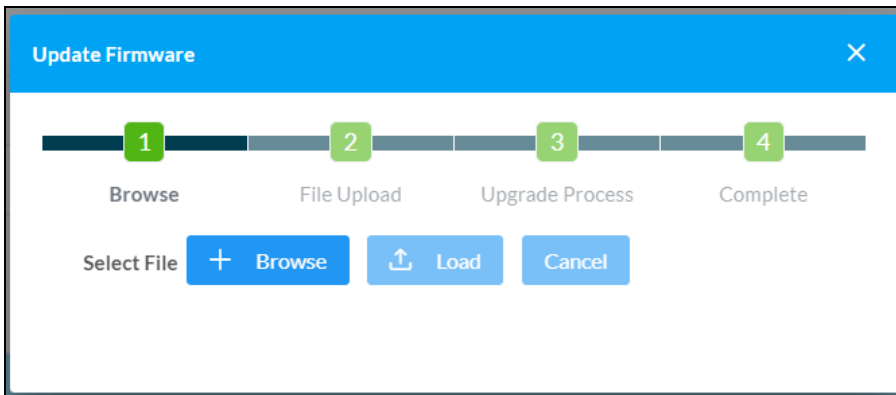
**NOTE:** Once the device is restored, it may have a new IP address. If reconnecting to the original address does not work, use the Device Discovery Tool in Crestron Toolbox software or an IP scanner application to find the device's new IP address.

If the web interface is not accessible, the device can also be restored to factory default settings via a hardware-based procedure (refer to [DM-NVX-360 and DM-NVX-363 Installation on page 270](#)). Card-based DM NVX devices can also be restored from the front panel menu of the DMF-CI-8.

## Update Firmware

To update the firmware of the device:

1. Select **Update Firmware** in the **Action** menu.
2. In the **Update Firmware** window that appears, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Update Firmware** window.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The firmware update is now complete, and the web interface will return to the main log-in page.

## Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

## Manage Certificates

Select **Manage Certificates** in the **Action** menu to open the **Manage Certificates** window. Use this window to add or remove certificates used in 802.1x authentication and other protected network functions.

**Manage Certificates** ✕

Root
Intermediate
Machine
Web Server

Name	Expiry Date	Actions
AAA Certificate Services	Dec 31 23:59:59 2028	
AC RAIZ FNMT-RCM	Jan 1 00:00:00 2030	
AC RAIZ FNMT-RCM SERVIDORES SEGUROS	Dec 20 09:37:33 2043	
ACCVRAIZ1	Dec 31 09:37:37 2030	
Actalis Authentication Root CA	Sep 22 11:22:02 2030	
AffirmTrust Commercial	Dec 31 14:06:06 2030	
AffirmTrust Networking	Dec 31 14:08:24 2030	

<< < 1 2 3 4 5 > >>

Add Root Certificate

The following certificate tabs are available in the **Manage Certificates** window:

- **Root:** The Root certificate is used by the DM NVX device to validate the network's authentication server. The device has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate:** The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine:** The Machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM NVX device. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1x, only one machine certificate can reside on the device.
- **Web Server:** The Web Server certificate is a digital file that contains information about the identity of the web server.

## Add Certificates

To add a certificate:

1. Select the corresponding certificate tab.
2. Select **Add [Type] Certificate**.




3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

**NOTE:** If the selected certificate is a machine certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list in the **Manage Certificates** window, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

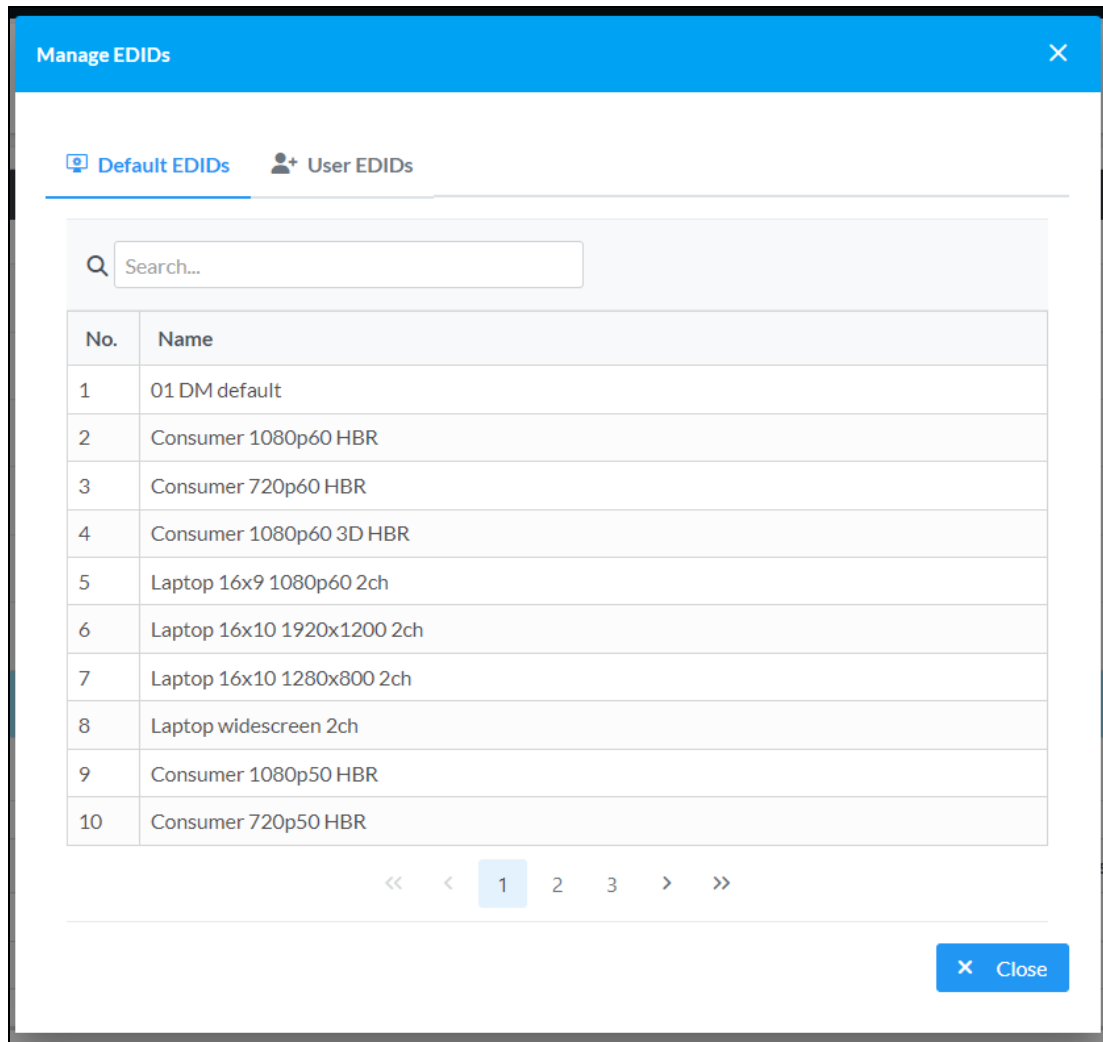
## Delete Certificates

To delete a certificate:

1. Select the corresponding certificate tab.
2. Select the trashcan icon  in the **Actions** column and the row of the certificate to be deleted.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

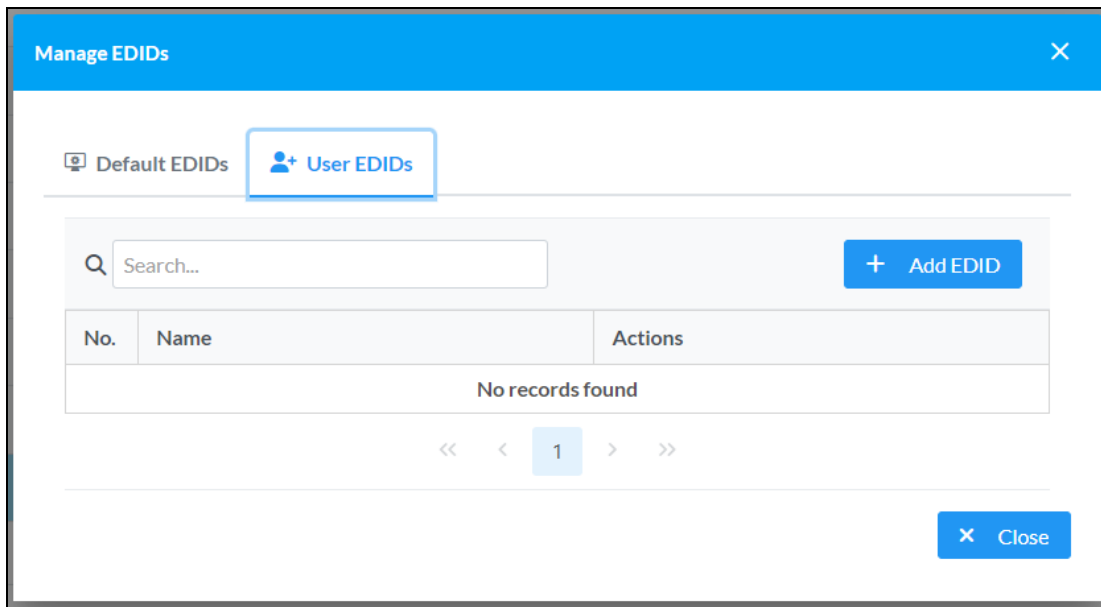
## Manage EDIDs

Select **Manage EDIDs** in the **Action** menu to open the **Manage EDIDs** window. Use this window to add, remove, or browse which EDIDs are available for the AV inputs and outputs of the DM NVX device.



The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM NVX device as part of the firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.

The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**.

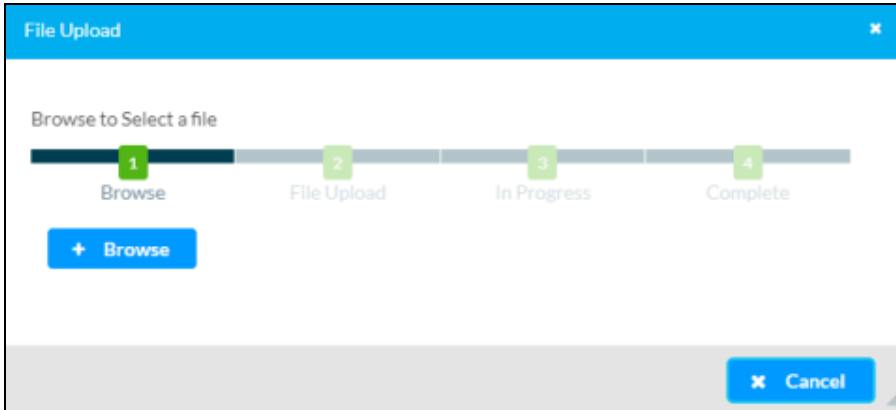


The screenshot shows a window titled "Manage EDIDs" with a close button (X) in the top right corner. Below the title bar, there are two tabs: "Default EDIDs" and "User EDIDs". The "User EDIDs" tab is selected and highlighted with a blue border. Below the tabs, there is a search bar with a magnifying glass icon and the text "Search...". To the right of the search bar is a blue button with a plus sign and the text "Add EDID". Below the search bar and button is a table with three columns: "No.", "Name", and "Actions". The table is currently empty, and the text "No records found" is centered in the table area. Below the table is a pagination control with the text "<< < 1 > >>". At the bottom right of the window is a blue button with a close icon (X) and the text "Close".

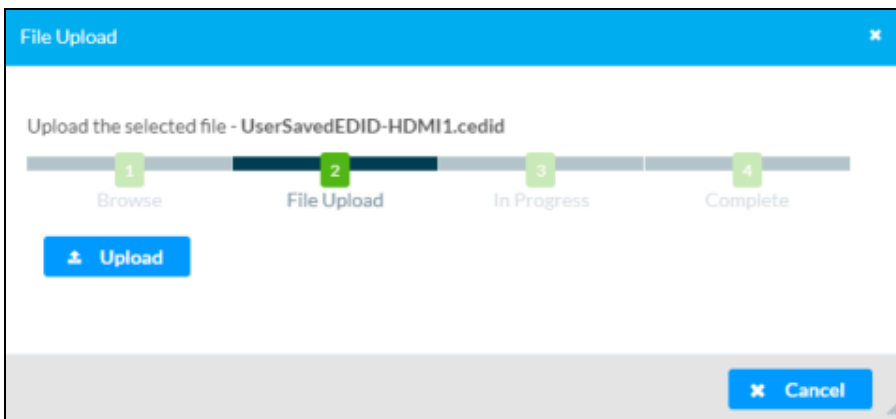
To add a **User EDID** file:

1. Select **+ Add EDID** at the top right of the table. The **File Upload** screen will appear.
2. Select **+ Browse**. Locate the desired .cedid file, then select **Upload** to upload it to the DM NVX device.

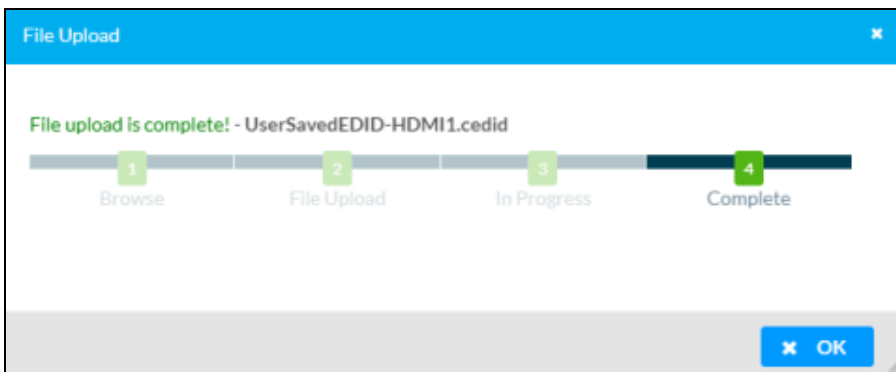
**Browse for and select a .cedid file**



**Upload the selected file**



**Wait for the upload to complete, then select OK**

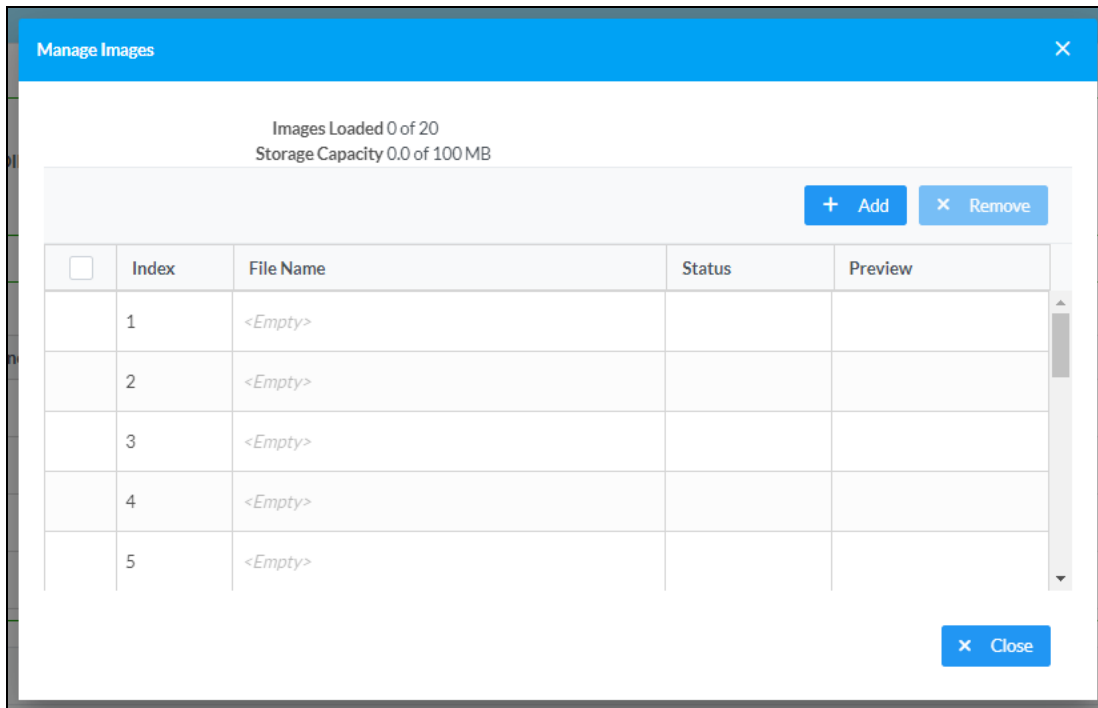


3. Select **OK** to return to the **Manage EDIDs** window. The uploaded User EDID is now displayed in the table.

To remove a **User EDID** file, select **Delete** in its table row.

## Manage Images (Receiver Mode Only)

Select **Manage Images** in the **Action** menu to open the **Manage Images** window. Use this window to add or remove images that can be displayed as backgrounds for the on-screen display feature of the DM NVX device.



To add an image:

1. Select **+ Add**. A **File Upload** window appears.
2. Select **+ Browse**. Locate the desired .jpeg, .jpg, or .png image file, then select **Upload** to upload it to the DM NVX device. The uploaded image will now appear in the **Manage Images** table with a preview and a **Ready** status message. Refer to the **Outputs** heading under [Settings on page 376](#) for information on setting a background image.

To delete an image, select its entry in the table then select **X Remove**.

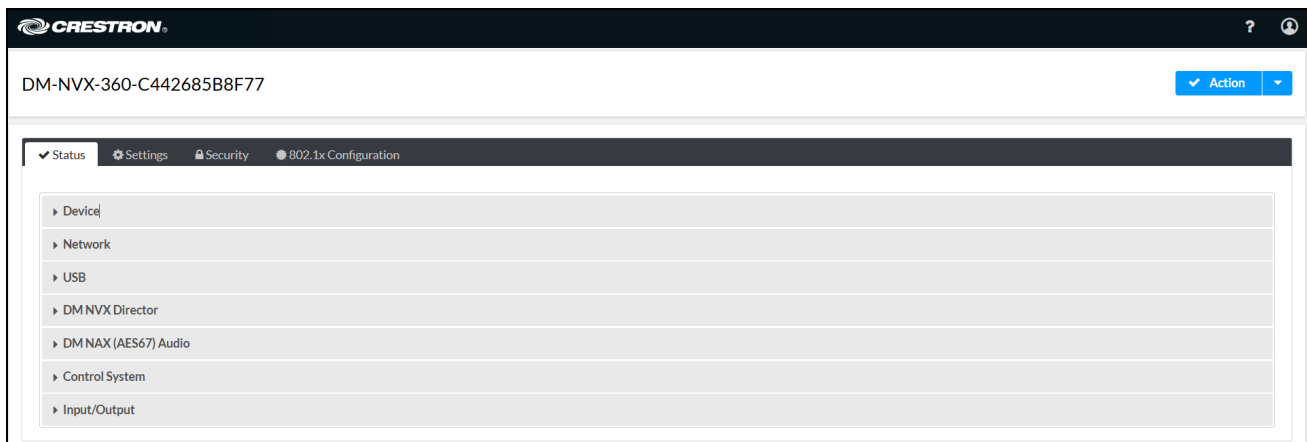
# Status

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

The **Status** page is the first page displayed when opening the interface of the DM NVX device. It displays general information about the device (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**), and the current status of the connectors on the device.

The **Status** page can be accessed at any time by selecting the **Status** tab of the interface.

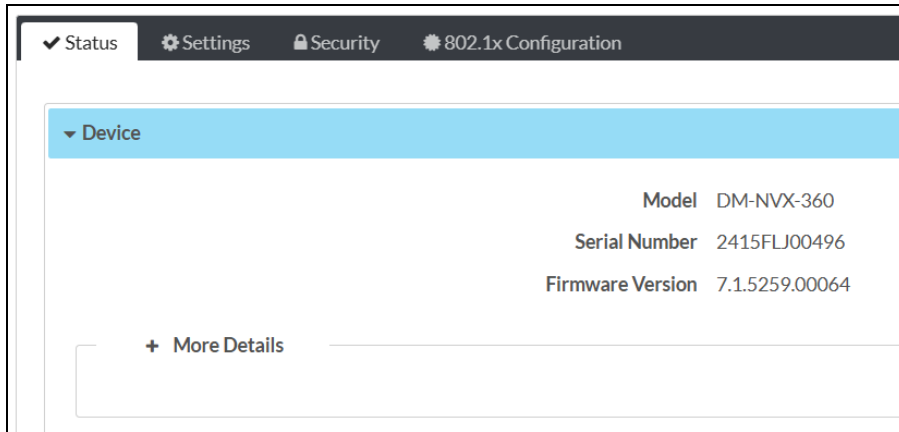


Information displayed on the **Status** page is organized into different sections:

- [Device on page 371](#)
- [Network on page 371](#)
- [USB on page 372](#)
- [DM NVX Director on page 372](#)
- [DM NAX \(AES67\) Audio on page 373](#)
- [Control System on page 374](#)
- [Input/Output on page 374](#)

## Device

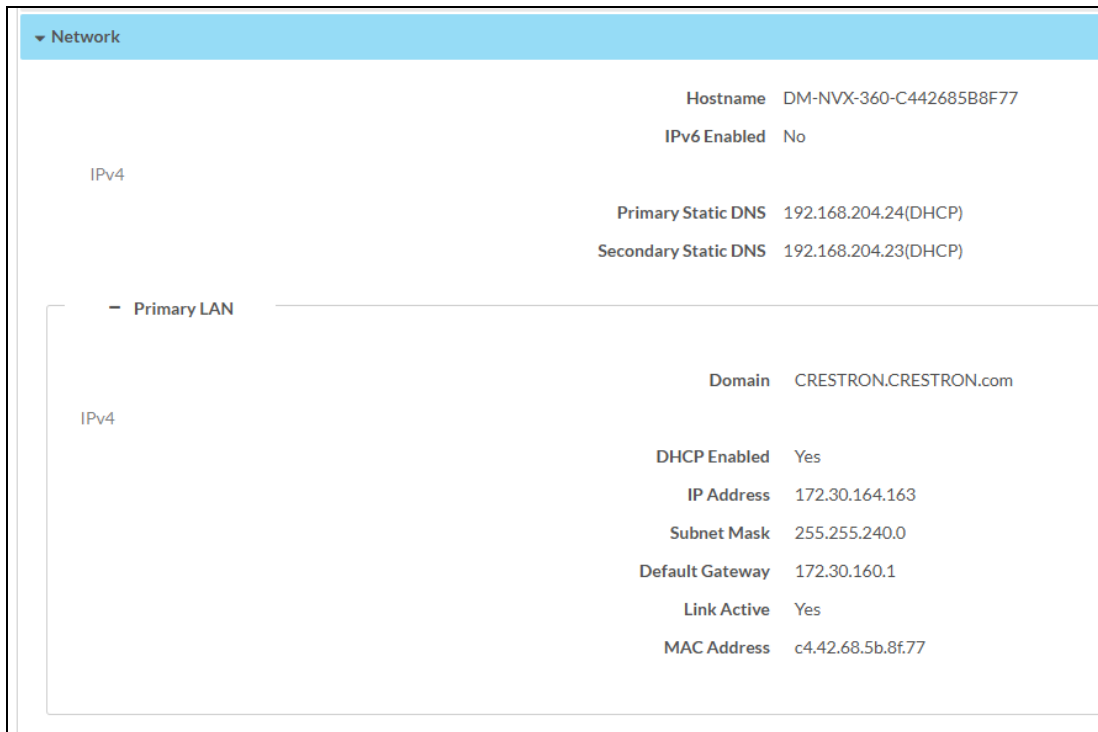
The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM NVX device.



Select **+ More Details** to review additional information about the device.

## Network

The **Network** accordion displays network-related information about the device, including the **Hostname**, **Domain Name**, and **DNS Servers**.



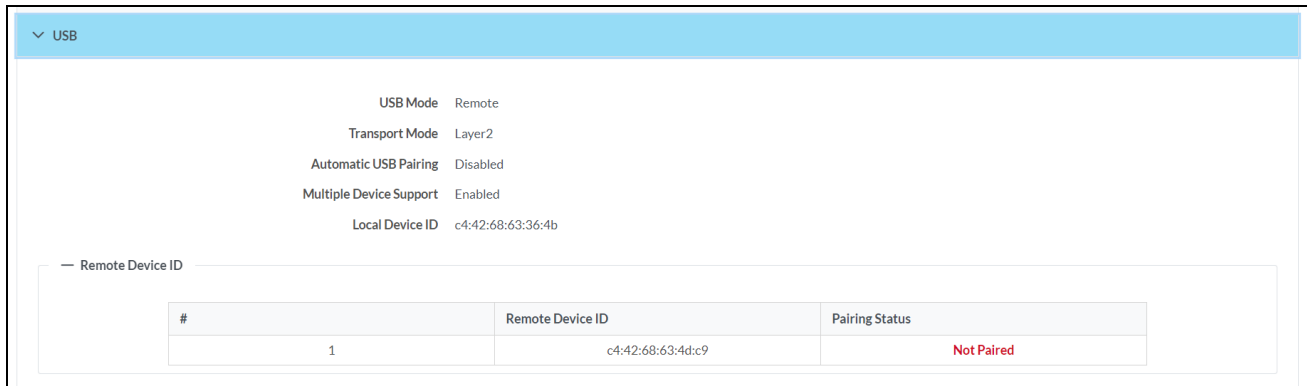
By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-360-C442685B8F77.

Select **+ Primary LAN** to display additional information regarding the Ethernet port designated as the **Primary LAN**. If **+ Primary LAN** is selected, select **- Primary LAN** to collapse the section.

**NOTE:** The **Primary LAN** port and other Ethernet port designations are assigned by the **Port Selection** feature. Refer to the **Port Selection** heading under [Settings on page 376](#) for details on configuring the **Port Selection** feature.

## USB

The **USB** accordion displays the **USB Mode**, **Transport Mode**, **Automatic USB Pairing**, **Multiple Device Support**, and **Local Device ID** of the device. Select **+ Remote Device ID** to display a table showing the **#**, **Remote Device ID**, and **Pairing Status** of any devices connected to the DM NVX device by USB.

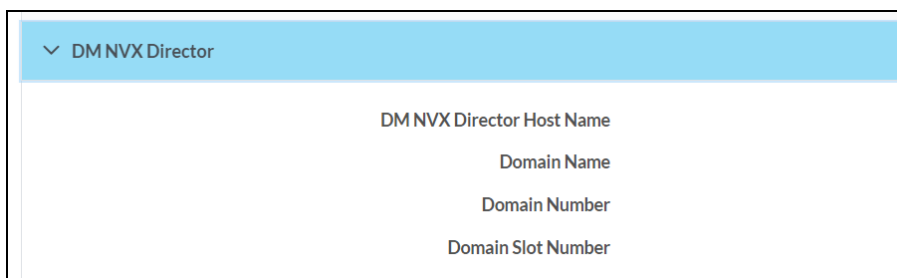


#	Remote Device ID	Pairing Status
1	c4:42:68:63:4d:c9	Not Paired

## DM NVX Director

The **DM NVX Director** accordion displays the details of the DM NVX Director switching appliance to which the DM NVX device is claimed.

**NOTE:** If the DM NVX device has not been claimed by a DM NVX Director switching appliance, all fields in this section will be empty.



- **DM NVX Director Host Name:** Displays the host name of the claiming DM NVX Director switching appliance.
- **Domain Name:** Displays the name of the DM NVX Director domain to which the DM-NVX-36X series device belongs.
- **Domain Number:** Displays the number of the DM NVX Director domain to which the DM-NVX-36X series device belongs.
- **Domain Slot Number:** Displays the slot number within the DM NVX Director that refers to this specific DM NVX device.



## DM NAX (AES67) Audio

The **DM NAX (AES67) Audio** accordion displays information regarding the **DM NAX (AES67) Transmit** and **DM NAX (AES67) Receive** audio-over-IP (AoIP) signals. This accordion varies slightly depending if the device is in transmitter or receiver mode.

The screenshot shows a web interface for 'DM NAX (AES67) Audio'. It is divided into two sections: 'DM NAX (AES67) Transmit' and 'DM NAX (AES67) Receive'. The Transmit section shows a status of 'Stream Started', 'Automatic' audio mode, port 4570, session name 'Stream01c4.42.68.63.4d.74', and multicast address 239.239.28.21. The Receive section shows a status of 'Stream Stopped', port 4570, and multicast address 0.0.0.0.

DM NAX (AES67) Transmit	
Status	Stream Started
DM NAX (AES67) Audio Mode	Automatic
Port	4570
Session Name	Stream01c4.42.68.63.4d.74
Multicast Address	239.239.28.21

DM NAX (AES67) Receive	
Status	Stream Stopped
Port	4570
Multicast Address	0.0.0.0

The **DM NAX (AES67) Audio Mode** field will be under the **DM NAX (AES67) Receive** heading if the device is in receiver mode or under the **DM NAX (AES67) Transmit** heading if the device is in transmitter mode. This field displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).

The details displayed for **DM NAX (AES67) Transmit** are:

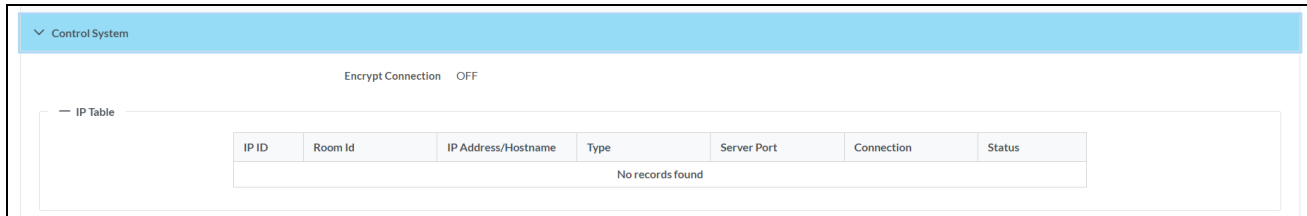
- **Status:** Displays a status message for the transmitting AoIP stream, such as **Stream Stopped**, **Stream Starting**, or **Stream Started**.
- **DM NAX (AES67) Audio Mode:** Displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).
- **Port:** Displays the port of the AoIP transmit stream.
- **Session Name:** Displays the session name of the AoIP transmit stream.
- **Multicast Address:** Displays the multicast address of the AoIP transmit stream.

The details displayed for **DM NAX (AES67) Receive** are:

- **Status:** Displays a status message for the AoIP stream receiver, such as **Connecting**, **Stream Stopped**, or **Stream Started**.
- **Port:** Displays the port of the received AoIP stream.
- **Multicast Address:** Displays the multicast address of the received AoIP stream.

## Control System

The **Control System** accordion displays information regarding the connection between the DM NVX device and a control system.

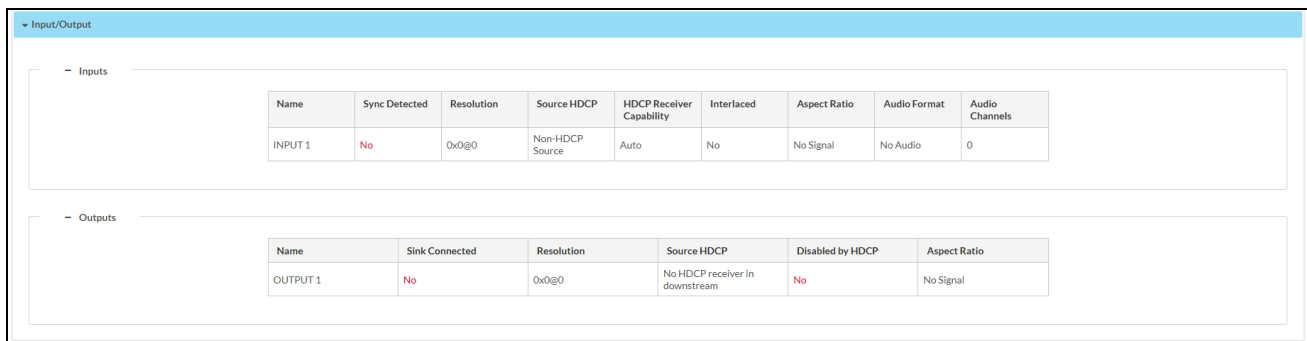


The displayed fields are:

- **Encrypt Connection:** Displays **ON** if the connection is encrypted or **OFF** if it is not.
- **IP ID:** Displays the IP ID of the DM NVX device in its IP table entry of the control system's IP table.
- **Room ID:** Displays the room ID of the DM NVX device in its IP table entry of the control system's IP table.
- **IP Address/Hostname:** Displays the IP address and host name of the control system.
- **Type:** Always displays **Peer** (this is the only relationship the DM NVX device can have to a control system).
- **Server Port:** Displays the port for the connection between the DM NVX device and the control system.
- **Connection:** Always displays **Gway** (this is the only connection type supported between a DM NVX device and a control system).
- **Status:** Displays either **ONLINE** or **OFFLINE** depending on if the DM NVX device is able to communicate with the control system.

## Input/Output

The **Input/Output** accordion displays status information regarding the AV input and output connectors.



The displayed fields for **Inputs** are:

- **Name:** Displays the name of the input.
- **Sync Detected:** Displays whether sync is detected at the input (**Yes**) or not (**No**).
- **Resolution:** Displays the resolution and refresh rate of the input video signal.

- **Source HDCP:** Displays the HDCP level of the input video signal.
- **HDCP Receiver Capability:** Displays the HDCP capabilities of the DM NVX device.
- **Interlaced:** Displays **Yes** or **No** depending if the input video signal is interlaced or not.
- **Aspect Ratio:** Displays the aspect ratio of the input video signal.
- **Audio Format:** Displays the audio format of the input signal.
- **Audio Channels:** Displays the number of audio channels in the input signal.

The displayed fields for **Outputs** are:

- **Name:** Displays the name of the output.
- **Sink Connected:** Displays whether a sink (such as a display or projector) is connected to the output (**Yes**) or not (**No**).
- **Resolution:** Displays the current resolution of the video output signal.
- **Source HDCP:** Displays the HDCP level supported by the connected display or projector.
- **Disabled by HDCP:** Displays whether the output is disabled by HDCP (**Yes**) or not (**No**).
- **Aspect Ratio:** Displays the aspect ratio of the video output signal.

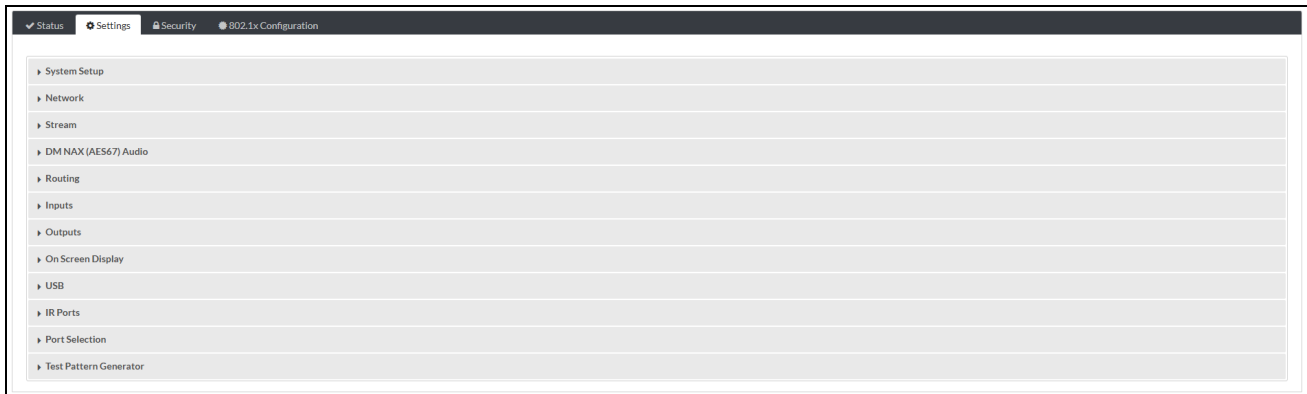
# Settings

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

The **Settings** page enables configuration of the DM NVX device's settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the interface.

## Settings Page (Transmitter Mode Shown)



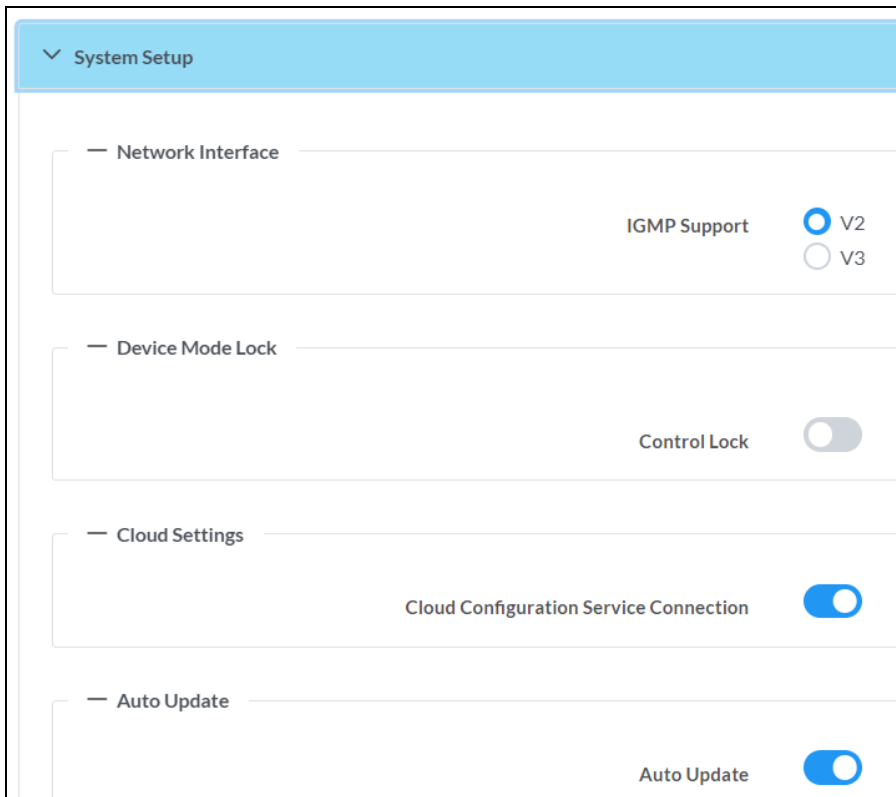
**NOTE:** Some settings are available only in encoder (transmitter) or decoder (receiver) mode. Mode requirements are noted in headings below where appropriate.

Settings available on the **Settings** page are organized into different sections:

- [System Setup on page 377](#)
- [Network on page 383](#)
- [Stream on page 384](#)
- [DM NAX \(AES67\) Audio on page 392](#)
- [Routing on page 394](#)
- [Subscriptions \(Receiver Mode Only\) on page 397](#)
- [Inputs on page 399](#)
- [Outputs on page 401](#)
- [On Screen Display on page 412](#)
- [USB on page 413](#)
- [IR Ports on page 415](#)
- [Port Selection on page 416](#)
- [Test Pattern Generator on page 417](#)

## System Setup

The **System Setup** accordion contains settings for configuration of the following system functions.



The screenshot shows the 'System Setup' accordion with four sections:

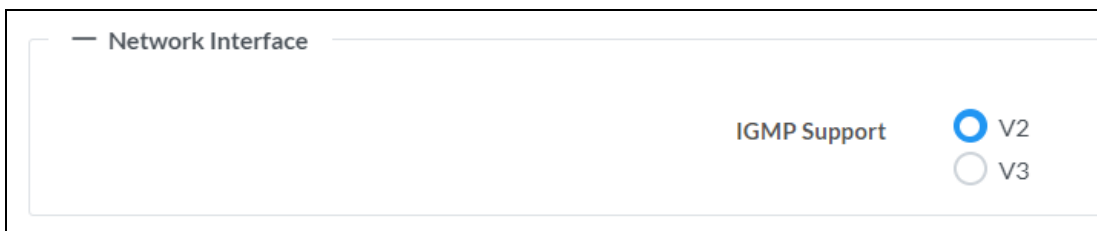
- Network Interface:** IGMP Support is set to V2 (selected) and V3 (unselected).
- Device Mode Lock:** Control Lock is turned off (toggle is grey).
- Cloud Settings:** Cloud Configuration Service Connection is turned on (toggle is blue).
- Auto Update:** Auto Update is turned on (toggle is blue).

### Network Interface

The **Network Interface** section provides a choice between IGMPv2 and IGMPv3 operation. Choose the settings that match the capabilities of the network hardware.

#### NOTES:

- This setting must match on all DM NVX devices in a system to ensure compatibility.
- DM NVX devices are set to IGMPv2 operation by default.
- Crestron recommends leaving DM NVX systems set to IGMPv2 operation unless the network specifically requires IGMPv3.



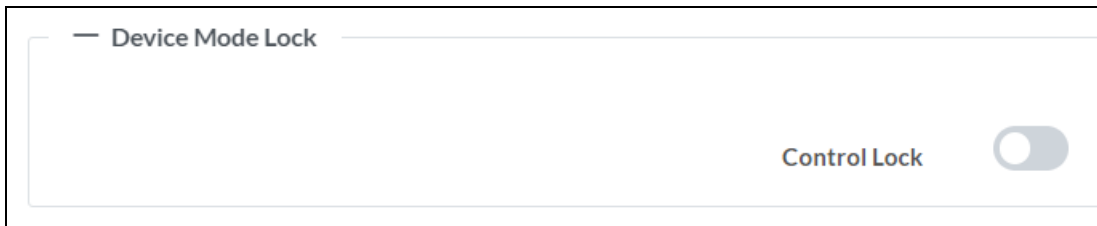
This close-up screenshot shows the 'Network Interface' section with the 'IGMP Support' setting. The V2 radio button is selected, and the V3 radio button is unselected.

To change the **Network Interface** mode:

1. Select **V2** to set the DM NVX device to IGMPv2 operation, or select **V3** to set the device to IGMPv3 operation.
2. Select **Save Changes**. A prompt will appear to reboot the device.
3. Select **Yes, Reboot Now** to reboot the device into the new **Network Interface** mode.

## Device Mode Lock

The **Device Mode Lock** section provides a toggle for the **Control Lock** feature.

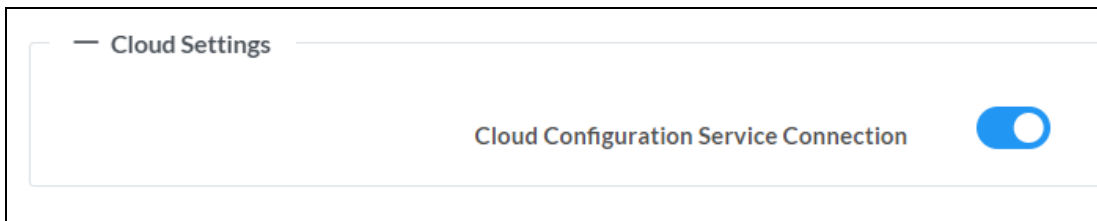


Set the **Control Lock** toggle to the right to lock out the push buttons built in to the DM NVX device.

Set the **Control Lock** toggle to the left to disable the lock, allowing the push buttons to control source routing and device modes.

## Cloud Settings

The Cloud Settings section provides a toggle to enable or disable communication with the Crestron XiO Cloud® platform.

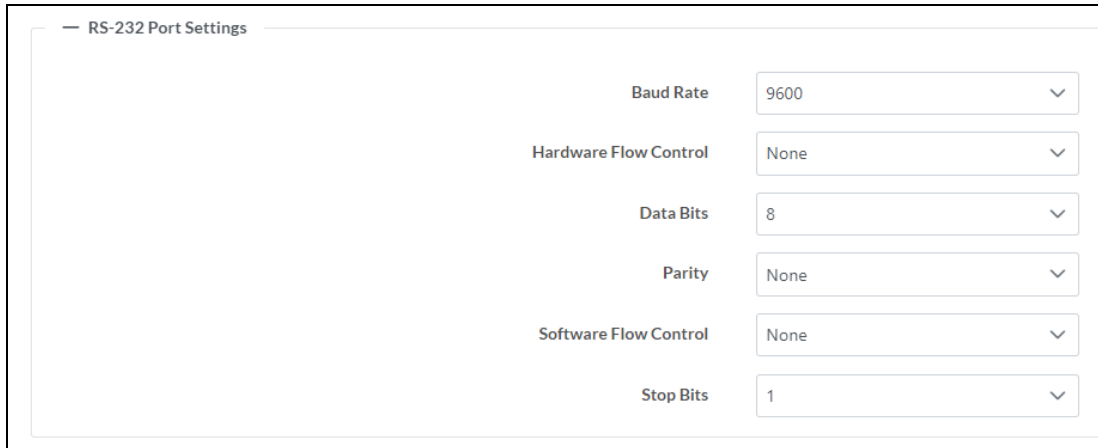


Set the **Cloud Configuration Service Connection** toggle to the right to allow the DM NVX device to communicate with the XiO Cloud platform. Set the toggle to the left to prevent the device from communicating with the XiO Cloud platform.

## RS-232 Port Settings

**NOTE:** This section is not available on card-based models.

Configure the settings for the built-in RS-232 port of the device in the **RS-232 Port Settings** section.



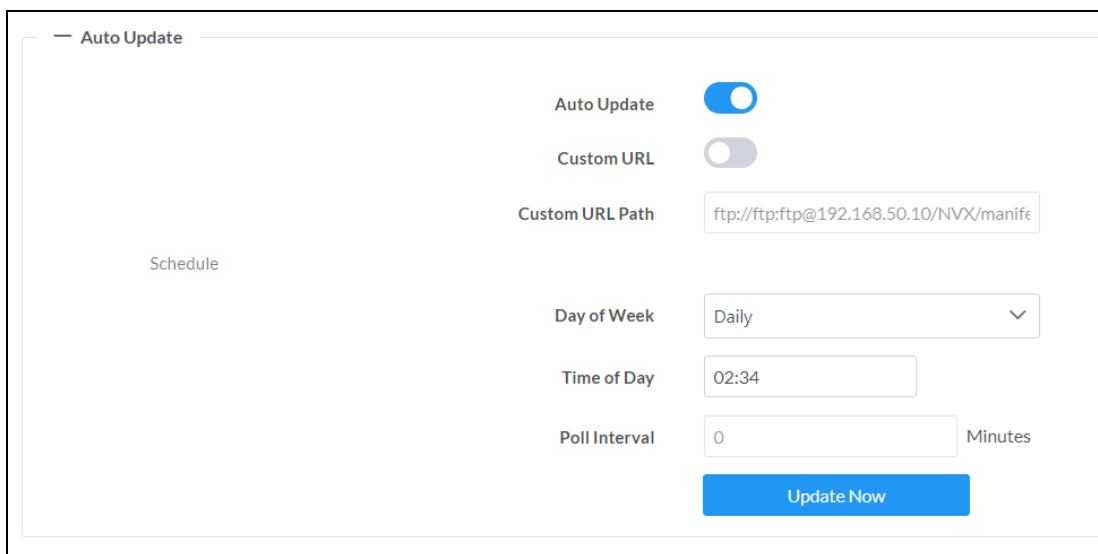
The screenshot shows the 'RS-232 Port Settings' configuration page. It contains several settings, each with a label and a corresponding input field or dropdown menu:

- Baud Rate:** A dropdown menu set to '9600'.
- Hardware Flow Control:** A dropdown menu set to 'None'.
- Data Bits:** A dropdown menu set to '8'.
- Parity:** A dropdown menu set to 'None'.
- Software Flow Control:** A dropdown menu set to 'None'.
- Stop Bits:** A dropdown menu set to '1'.

- **Baud Rate:** Select the baud rate from the drop-down.
- **Hardware Flow Control:** Select the hardware flow control from the drop-down.
- **Data Bits:** Select the number of data bits from the drop-down.
- **Parity:** Select the parity from the drop-down.
- **Software Flow Control:** Select the software flow control from the drop-down.
- **Stop Bits:** Select the number of stop bits from the drop-down.

## Auto Update

The DM NVX device can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



The screenshot shows the 'Auto Update' configuration page. It includes the following settings:

- Auto Update:** A toggle switch that is turned on (blue).
- Custom URL:** A toggle switch that is turned off (grey).
- Custom URL Path:** A text input field containing 'ftp://ftp:ftp@192.168.50.10/NVX/manife'.
- Schedule:** A section containing:
  - Day of Week:** A dropdown menu set to 'Daily'.
  - Time of Day:** A text input field set to '02:34'.
  - Poll Interval:** A text input field set to '0' with the unit 'Minutes' to its right.
- Update Now:** A blue button located at the bottom of the settings.

To configure the **Auto Update** feature settings:

1. Set the **Auto Update** toggle to the right to enable the **Auto Update** feature.
2. Define the URL to download the updates by doing either of the following:
  - a. Use the default URL to download the updates from the Crestron server.
  - b. Use a custom URL. Set the **Custom URL** toggle to the right to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
  - a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
  - b. Set the **Poll Interval** by entering a value from 60 to 65535 minutes. A value of 0 disables the **Poll Interval**.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

## Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM NVX device.

— Date/Time

Synchronization

Time Synchronization

[Synchronize Now](#)

NTP Time Servers

<input type="checkbox"/>	Address	Port	Authentication Method	Authentication Key	Key ID
<input type="checkbox"/>	pool.ntp.org	123	None	*****	0

[+ Add](#) [- Remove](#)

Configuration

Time Zone: (UTC-05:00) Eastern Time (US & Can) ▼

Date: 09/30/2024

Time: 07:58

## Synchronization

1. Set the **Time Synchronization** toggle to the right to enable or left to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

## Configuration

1. Open the **Time Zone** drop-down menu to select the applicable time zone.
2. In the **Date** field, enter the current date.



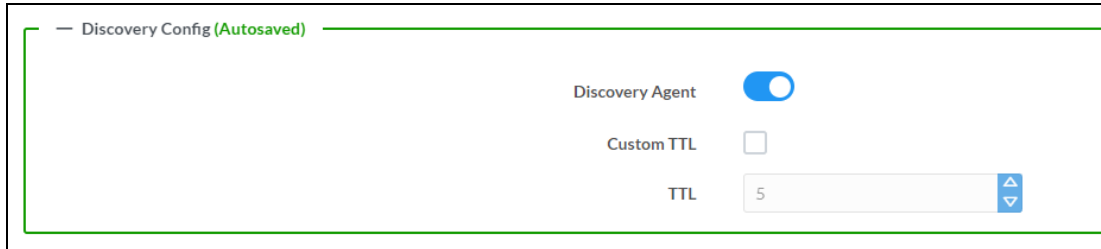
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** drop-down menu to revert to the previous settings without saving.

## Discovery Config

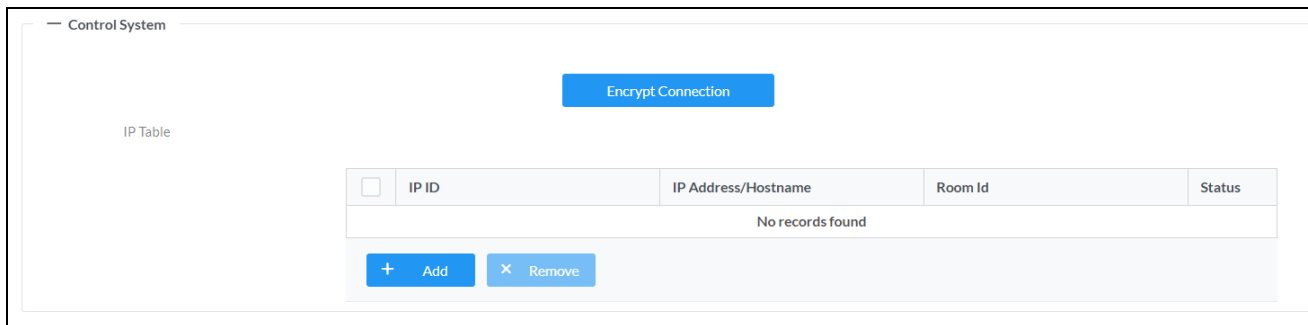
The **Discovery Config** section provides settings to customize how the DM NVX device and its streams can be discovered on the LAN.



Set the **Discovery Agent** toggle to the right to allow streams from the device to be discoverable on the network or to the left to prevent network discovery. When **Discovery Agent** is enabled, the streams from the DM NVX device are displayed in the **Available Streams** list of other receivers.

Select the **Custom TTL** option and enter a value in the **TTL** field if a custom Time-to-live (TTL) value is required on the network. The default **TTL** value is 5.

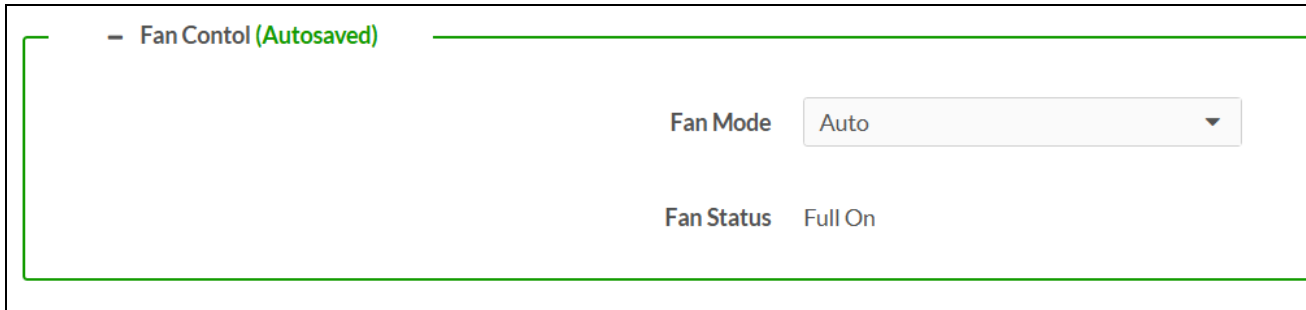
## Control System



1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
  - a. Enter a username in the **Control System Username** field.
  - b. Enter a password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
  - a. Enter the Room ID in the **Room ID** field.
  - b. Enter the IP ID of the DM NVX device in the **IP ID** field.
  - c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box appears, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

## Fan Control (Receiver Mode Only)

**NOTE:** This section is not available on card-based models.



Fan Control (Autosaved)

Fan Mode Auto

Fan Status Full On

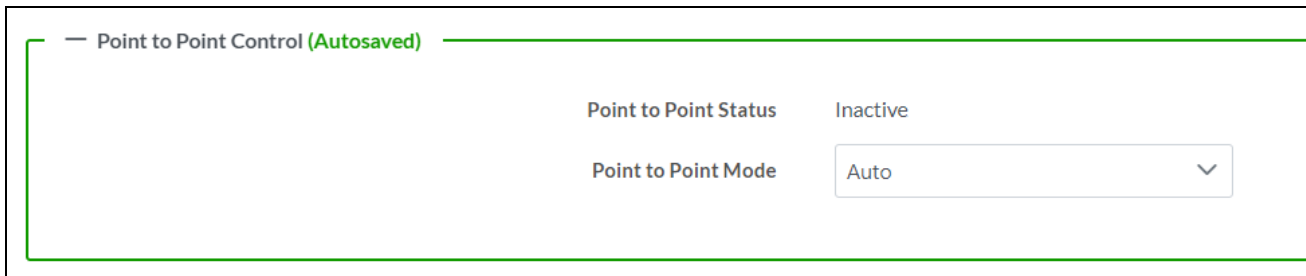
Select an option from the **Fan Mode** drop-down:

- **Auto:** The fan automatically turns on when either of these conditions are met:
  - A video stream is present.
  - The internal temperature of the device exceeds the normal operating range.
- **Always On:** The fan runs continuously regardless of video stream status and internal temperature.

**Fan Status** is a read-only field that will either read **Full On** to indicate that the fan is running or **Off** to indicate that the fan is not running.

## Point to Point Control

The **Point to Point Control** section allows enabling or disabling point-to-point streaming of AV-over-IP between this device and another directly-connected DM NVX device without the need for a control system.



Point to Point Control (Autosaved)

Point to Point Status Inactive

Point to Point Mode Auto

**Point to Point Status** is a read-only field that indicates whether point-to-point mode is **Active** or **Inactive**.

Select an option from the **Point to Point Mode** drop-down:

- **Auto:** (Default setting) Each 1000BASE-T port of the device detects whether it is connected directly to another DM NVX device or to a 1000BASE-T switch. If a direct connection between a DM NVX encoder and decoder is detected, point-to-point streaming is automatically initiated.
- **Disable:** Disables point-to-point streaming.

## Network

The **Network** accordion contains network-related settings for the DM NVX device, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

The screenshot shows the Network configuration interface. At the top, there is a 'Network' header. Below it, the 'IPv4' section is visible, containing fields for Hostname (DM-NVX-360-C442685B8F77), IPv6 Enabled (disabled), Primary Static DNS (192.168.204.24(DHCP)), and Secondary Static DNS (192.168.204.23(DHCP)). Below the IPv4 section, the 'Primary LAN' section is visible, containing fields for Domain (CRESTRON.CRESTRON.com), DHCP Enabled (enabled), IP Address (172.30.160.42), Subnet Mask (255.255.240.0), and Default Gateway (172.30.160.1).

**NOTE:** By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-360-C442685B8F77.

### Primary LAN

The **Primary LAN** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of the Ethernet adapter assigned as the **Primary LAN** via the **Port Selection** feature.

**NOTE:** Other LAN subheadings appear when the built-in Ethernet ports are given traffic designations via the **Port Selection** feature. Refer to [Port Selection on page 416](#) for more information on designating specific traffic to specific Ethernet ports. The same settings are available for the additional LAN subheadings that are available for **Primary LAN**.

Set the **DHCP** toggle to the right to enable **DHCP** or left to disable **DHCP**. This determines whether the IP address of the **Primary LAN** port is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled:** When DHCP is enabled (default setting), the IP address of the Primary LAN port is automatically assigned by a DHCP server on the local area network (LAN).

- **Disabled:** When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS:** Enter a primary DNS IP address.
  - **Secondary Static DNS:** Enter a secondary DNS IP address.
  - **IP Address:** Enter a unique IP address for the Primary LAN port.
  - **Subnet Mask:** Enter the subnet mask that is set on the network connected to the Primary LAN port.
  - **Default Gateway:** Enter the IP address that is to be used as the Primary LAN network's gateway.

To save any new network entries, select **Save Changes**.

## Stream

The settings available under the **Stream** accordion vary depending on whether the device is operating as an encoder (transmitter) or decoder (receiver).

### Stream Settings (Transmitter Mode)

#### Sample Stream Settings (Transmitter Mode)

The screenshot shows a web interface for configuring stream settings. At the top, there is a blue header with a dropdown arrow and the text "Stream". Below this, the settings are organized as follows:

- Mode:** A dropdown menu set to "Transmitter".
- Stream Type:** A dropdown menu set to "Pixel Perfect Processing (Default)".
- Multicast Address:** A text input field containing "239.8.0.0".
- Device Name:** A text input field containing "DM-NVX-360-C442685B8F77".
- Stream Location:** A text input field containing "rtsp://172.30.160.42:554/live.sdp".
- Status:** A text label indicating "Stream started".
- Resolution:** A text label with no value entered.
- Preview:** A large blue rectangular area with the text "NO VIDEO" centered in white.

Configure the basic stream settings:

- **Mode:** Select either **Receiver** or **Transmitter** from the drop-down. Selecting a new mode requires a reboot of the device. Select **Save Changes** to apply the new mode and reboot the device.
- **Stream Type:** Select either **Pixel Perfect Processing** (if transmitting to other DM NVX 4K60 4:4:4 capable endpoints) or **DM-NVX-D10/D20** (if transmitting to a decoder in the D10/D20/D200 family of DM NVX decoders).

- **Multicast Address:** Sets the multicast address of the outgoing stream.
  - The secondary audio stream from the DM NVX device will consume the next multicast address above the value entered here. For example, a **Multicast Address** of 239.10.0.1 will result in a secondary audio stream address of 239.10.0.2.

**CAUTION:** Ensure the value entered for **Multicast Address** is unique on the network. Duplicate multicast addresses will result in traffic collision and downstream receivers will fail to receive content.

**NOTE:** DM NVX devices can have a multicast transmit address anywhere in the range from 239.0.0.1 to 239.127.255.255. DM NAX audio-over-IP devices use a multicast range from 239.8.0.1 to 239.127.255.255.

- **Device Name:** Displays the name of the DM NVX device. A custom name can also be entered in this text box. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the stream.
- **Status:** Displays the status of the network stream (for example, **Stream starting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the outgoing stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services

Services (Autosaved)

Preview Settings

Preview Output

Base File Name

Generated Preview Images	Type	File Name
	135px	preview_135px.jpeg
	270px	preview_270px.jpeg
	540px	preview_540px.jpeg

Local Preview Path

The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

### Advanced

The **Advanced** section provides further configuration of the transmitting AVoIP stream along with stream statistics.

The screenshot shows the 'Advanced' configuration page with the following settings:

- Auto Initiation:  (On)
- Start/Stop buttons: Start (blue play icon), Stop (grey square icon)
- Custom Ports:  (Off)
- RTSP Port: 554
- TS Port: 4570
- Bitrate Type: Fixed
- Bitrate: 750 Mbps
- Custom Bitrate: 750 Mbps
- Active Bitrate: 686 Mbps
- Custom TTL:  (Off)
- TTL: 5
- Custom DSCP:  (Off)
- DSCP: 32

The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to configure a custom RTSP or TS port for the transmitting DM NVX stream. Set the toggle to the left to use the default values for both ports (the default RTSP port value is 554 and the default TS port value is 4570).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.
- Enter a custom TS port in the **TS Port** field.

**NOTE:** Valid values for both custom port fields range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **Bitrate Type:** Select either Fixed or Variable from the drop-down.
  - **Fixed:** The transmitting DM NVX stream always meets the bitrate specified by the **Bitrate** drop-down. The default and recommended bitrate value is 750 Mbps.
  - **Variable:** The bitrate of the transmitting DM NVX stream is dynamic based on the resolution of the stream content. Selecting **Variable** will disable the **Bitrate** drop-down and **Custom Bitrate** text entry field.
  - **Custom:** The transmitting DM NVX stream always meets the bitrate specified by the **Custom Bitrate** text entry field. The default and recommended bitrate value is 750 Mbps.
- **Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Fixed**.
- **Custom Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Custom**.
- **Active Bitrate:** Displays the current bitrate of the transmitting DM NVX stream.
- **Custom TTL:** Multicast Time-to-live (TTL) provides the ability to limit or extend the hop limit of a DM NVX stream that traverses routers. In IPv4 multicasting, routers have a TTL threshold assigned to each interface. Only multicast packets with a TTL greater than the threshold of the interface are forwarded.

Select the **Custom TTL** checkbox to enter a custom TTL value for the DM NVX stream in the **TTL** field.

- **TTL:** Enter a value from 1 to 255. The default TTL value is 5.

- **Custom DSCP:** To implement Quality of Service (QoS), IP networks use Differentiated Services Code Point (DSCP) values. Within an IP packet header, the DSCP is a value from 0 to 63 that maps to a certain traffic classification. Based on IT department policies and network switch configurations, DSCP values are used to determine the treatment of specific packets in router queues, the routes of traffic flows, and per-hop behavior. By default, DSCP for DM NVX AV-over-IP is set to 32.

Select the **Custom DSCP** checkbox to enter a custom DSCP value for the DM NVX stream's AV-over-IP packets in the **DSCP** field

**NOTE:** Only change the DSCP value if required by IT department policies or if necessitated by poor network performance. Refer to [AV-over-IP Network Design on page 628](#) for network performance troubleshooting tips.

The screenshot shows a configuration interface with two main sections: 'Statistics' and 'Audio/Video'. In the 'Statistics' section, there is a 'Statistics' toggle switch that is currently turned off. Below it, 'Packets Transmitted' and 'Packets Dropped' are both displayed as 0. A 'Reset Statistics' button is located to the right of these values. The 'Audio/Video' section shows 'Audio Channels' set to 2, 'Audio Format' set to LPCM, and 'Aspect Ratio' set to 16:9.

The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the transmitting DM NVX stream:
  - **Packets Transmitted** will display the total number of packets transmitting by the DM NVX device as part of the outgoing DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - Select **Reset Statistics** to set both **Packets Transmitted** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the transmitting DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the transmitting DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the transmitting DM NVX stream.



## Stream Settings (Receiver Mode)

### Sample Stream Settings (Receiver Mode)

Stream

Mode: Receiver

Device Name: DM-NVX-384-C44268000587

Stream Location: rtsp://172.30.148.214:554/live.sdp

Multicast Address:

Status: Connecting

Resolution:

Preview: NO VIDEO

Configure the basic stream settings:

- **Mode:** Select either **Receiver** or **Transmitter** from the drop-down. Selecting a new mode requires a reboot of the device. Select **Save Changes** to apply the new mode and reboot the device.
- **Device Name:** Displays the name of the upstream DM NVX device. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the incoming stream. A stream location can also be manually entered by typing in this text field.
- **Multicast Address:** Displays the multicast address of the incoming stream.
- **Status:** Displays the status of the network stream (for example, **Connecting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the incoming stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services

Services (Autosaved)

Preview Settings

Preview Output:

Base File Name: preview

Generated Preview Images	Type	File Name
	135px	preview_135px.jpeg
	270px	preview_270px.jpeg
	540px	preview_540px.jpeg

Local Preview Path: /preview

The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

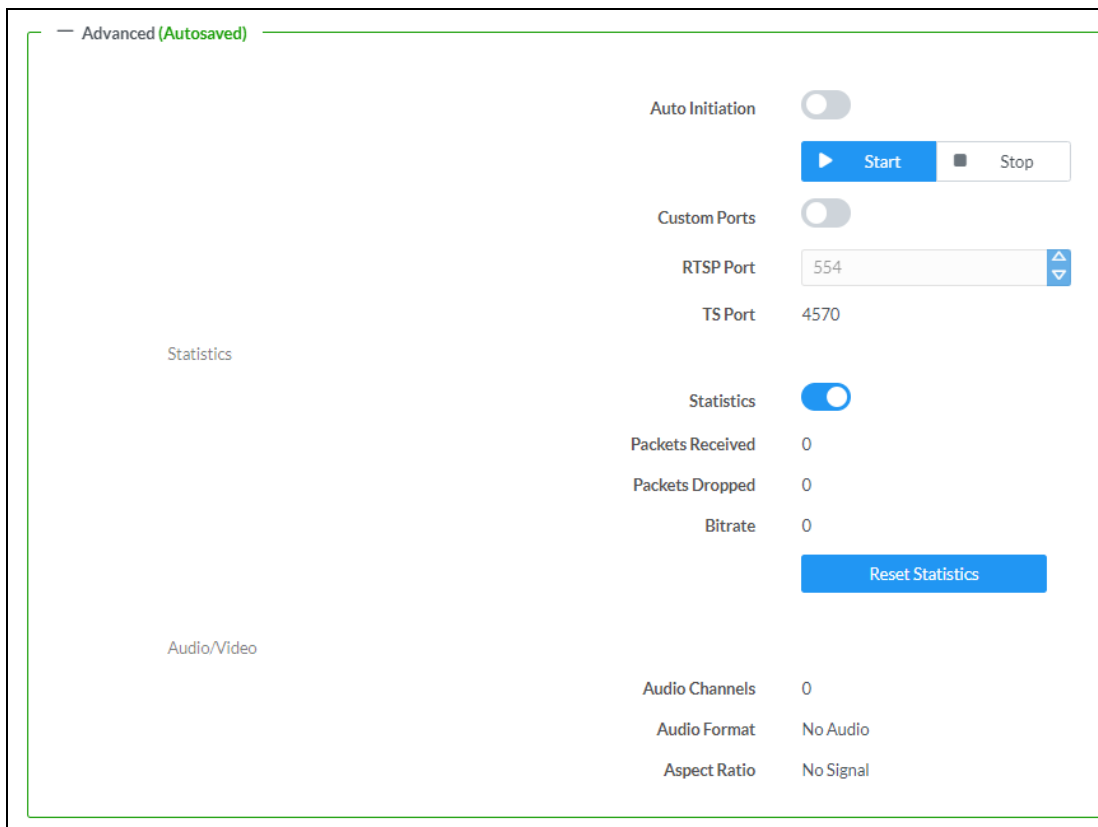
**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

### Advanced

The **Advanced** section provides further configuration of the incoming AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to set a custom RTSP port to connect to an incoming DM NVX stream. Set the toggle to the left to use the default port values (the default RTSP port value is 554).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.

**NOTE:** Valid values for the custom port field range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **TS Port:** Displays the default TS port value (4570).

The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the incoming DM NVX stream:
  - **Packets Received** will display the total number of packets received by the DM NVX device as part of the incoming DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - **Bitrate** will display the current bitrate of the incoming DM NVX stream.
  - Select **Reset Statistics** to set both **Packets Received** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the incoming DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the incoming DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the incoming DM NVX stream.

## DM NAX (AES67) Audio

DM NVX devices natively support DM NAX® audio-over-IP technology, which is built off the standards of AES67. AES67 support allows a selected audio source to be transmitted as a 2-channel AES67 stream while another 2-channel AES67 audio stream is received from another AES67-capable device or Crestron DM NAX device.

Use the **DM NAX (AES67) Audio** accordion to configure the DM NAX audio-over-IP transmit and receive streams of the DM NVX device.

▼ DM NAX (AES67) Audio

DM NAX (AES67) Transmit (Autosaved)
—

Mode

Automatic ▼

Session Name \*

Stream01c4.42.68.63.4d.74

Multicast Address

239.239.28.21

Port

4570 ▲▼

DM NAX (AES67) Transmit Advanced (Autosaved)
—

Auto Initiation

▶ Start

■ Stop

Status

Stream Started

Encoding Format

LPCM

Encoding Sample Rate

48000

Bitrate

3

Channels

2

Gain \*

0 ▲▼

db

To configure the **DM NAX (AES67) Transmit** stream:

1. Select a stream addressing mode from the **Mode** drop-down:
  - **Automatic** adds 1 to the outgoing video stream multicast address to generate the DM NAX transmit multicast address. For example, if the video multicast address is 239.8.0.1, the DM NAX (AES67) multicast address is automatically set to 239.8.0.2.
  - **Manual** requires the multicast address of the transmitting DM NAX stream to be set manually. Selecting **Manual** enables the **Multicast Address** and **Port** text entry fields.
  - **Disabled** turns off DM NAX transmission from the DM NVX device.
2. Set a custom session name in the **Session Name** text entry field. This is similar to setting a hostname for an IP address on the LAN. The session name will appear in addition to the multicast address when the DM NAX audio-over-IP stream is discovered on the network.
3. If the **Mode** is set to **Manual**, enter custom values in the **Multicast Address** and **Port** text entry fields.
4. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the DM NAX transmit stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.
5. Adjust the **Gain** slider to configure the audio level compensation on the transmitting DM NAX stream from -10 to +10 dB.

The screenshot shows two configuration panels for DM NAX (AES67) Receive. The top panel, titled "DM NAX (AES67) Receive (Autosaved)", contains a "Multicast Address" text field with the value "0.0.0.0" and a "Port" dropdown menu with the value "4570". The bottom panel, titled "DM NAX (AES67) Receive Advanced (Autosaved)", contains an "Auto Initiation" toggle switch that is turned on (blue). Below the toggle are "Start" and "Stop" buttons. The "Status" is "Stream Stopped". Other parameters are listed: "Encoding Format" is "LPCM", "Encoding Sample Rate" is "0", "Bitrate" is "3", and "Channels" is "0".

To configure the **DM NAX (AES67) Receive** stream:

1. Enter a valid multicast IP address in the **Multicast Address** field.
2. Enter the port value of the stream in the **Port** field.
3. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the incoming DM NAX stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

## Routing

Use the **Routing** accordion to configure the audio and video routing behavior of the DM NVX device's internal switcher, secondary audio stream, and DM NVX AV-over-IP receiver.

Routing

Input Routing (Autosaved)

Video

Automatic Input Routing

Active Video Source None

Video Source None

Audio

Active Audio Source No Audio Selected

Audio Source Audio Follows Video

Analog Audio Mode Insert

DM NAX (AES67) Audio

Active Transmit Audio Source No Audio Selected

Transmit Audio Source Audio Follows Video

### Input Routing

The **Input Routing** section provides settings relating to the internal video switcher and secondary audio stream of the device:

Set the **Automatic Input Routing** toggle to the right to have the device route the HDMI input automatically by signal detection. Set the toggle to the left to manually set the active source via the drop-down menus or a control system program.

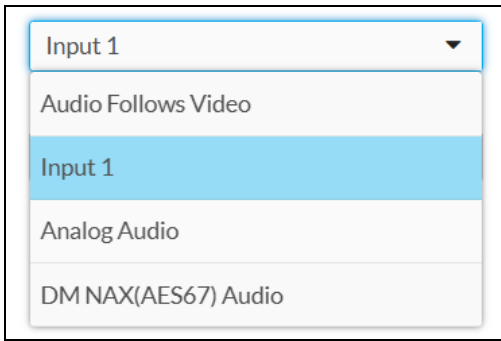
The fields under the **Video** subheading refer specifically to video signal routing:

- The **Active Video Source** read-only field displays the name of the currently active video source.
- Use the **Video Source** drop-down to manually set an active video source from between **None** and **Input 1**.

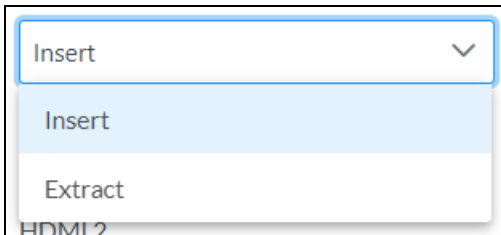
The fields under the **Audio** subheading refer specifically to audio signal routing, which can be handled separately from video routing.

- The **Active Audio Source** read-only field displays the name of the currently active audio source. This reflects the audio that is embedded in the HDMI output (in Receiver mode) or DM NVX AV-over-IP stream (in Transmit mode) of the device, as well as the audio that transmits from the analog audio connector when **Analog Audio Mode** is set to **Extract**.

- Use the **Audio Source** drop-down to manually set an active audio source from among **Audio Follows Video**, **Input 1**, **Analog Audio**, and **DM NAX (AES67) Audio**.

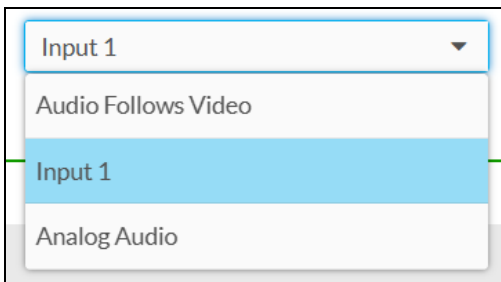


- Use the **Analog Audio Mode** drop-down to select between **Insert** or **Extract**.
  - In **Insert** mode, the analog audio connector will function as an input and the incoming audio signal can be selected as the **Audio Source**.
  - In **Extract** mode, the analog audio connector will function as an output and will transmit the audio signal selected as **Active Audio Source**.



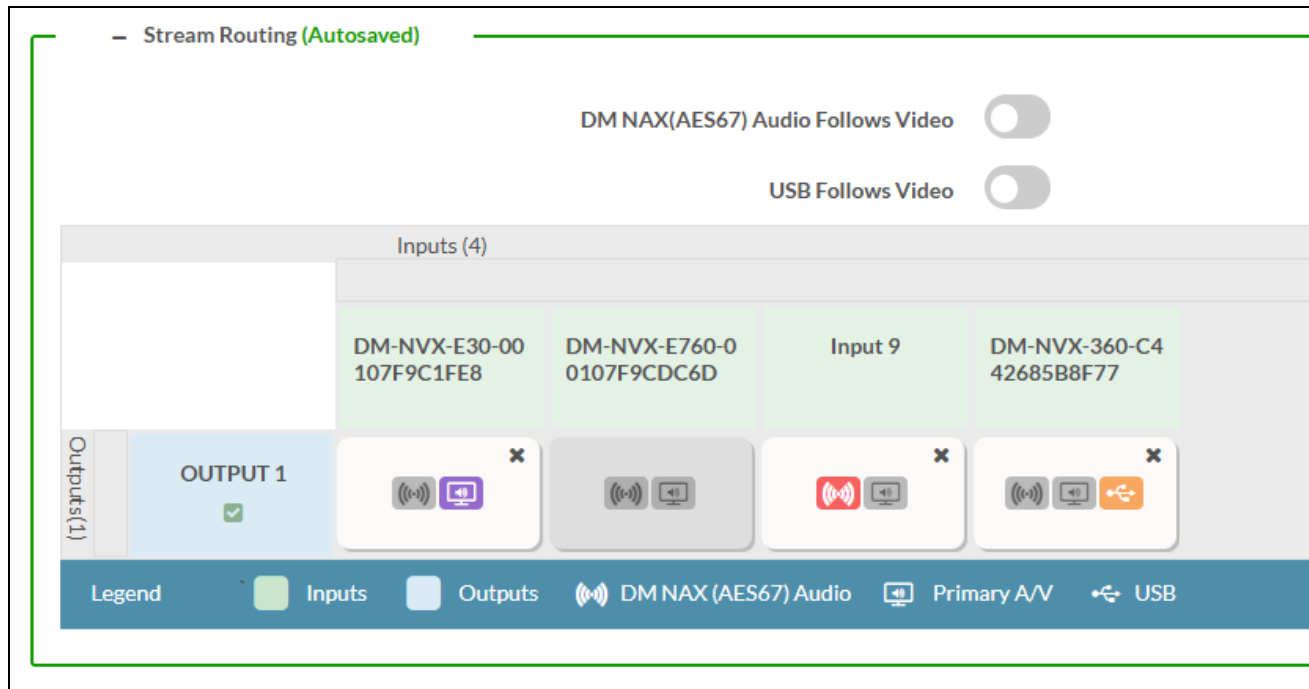
The fields under the **DM NAX (AES67) Audio** subheading refer to the secondary audio stream of the DM NVX device. This is a discrete audio path that is not affected by the **Audio Source** or **Analog Audio Mode** settings.

- The **Active Transmit Audio Source** read-only field displays the name of the audio source currently transmitting on the AES67 secondary audio stream.
- Use the **Transmit Audio Source** drop-down to manually set an AES67 audio source from among **Audio Follows Video**, **Input 1**, and **Analog Audio**.



## Stream Routing (Receiver Mode Only)

The **Stream Routing** section houses the routing matrix for audio, video, and USB signals that can be received over the network.





**NOTE:** In order for the routing matrix to appear, at least one subscription must be added from the **Subscriptions** accordion. Refer to [Subscriptions \(Receiver Mode Only\)](#) on page 397 for information on adding subscriptions.




Configure the toggles to establish preferred routing settings:

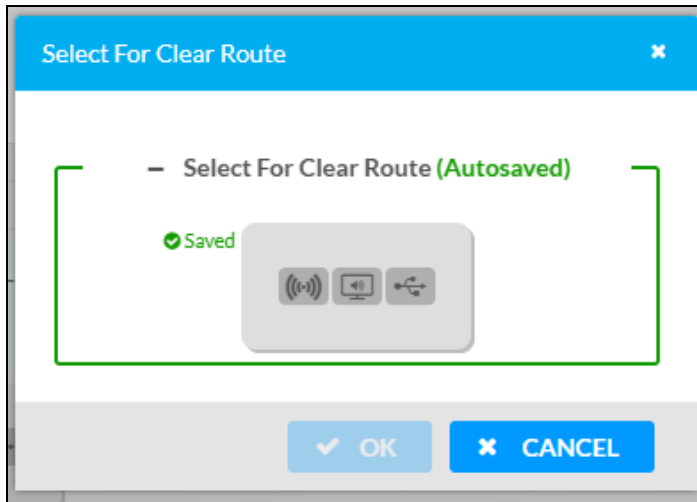
- Set the **DM NAX (AES67) Audio Follows Video** toggle to the right to have the secondary audio stream match the same routes as the primary AV stream. Set the toggle to the left to manage the secondary audio stream routing independently of the primary AV stream.
- Set the **USB Follows Video** toggle to the right to have USB routes match the routing of the primary AV stream. Set the toggle to the left to manage USB routing independently of the primary AV stream.

Use the routing matrix to establish or break signal routes:

- To route an AV-over-IP stream to the DM NVX device, select the  **Primary A/V** icon in that stream's matrix column. If either the **DM NAX (AES67) Audio Follows Video** or **USB Follows Video** toggles are set to the right, their respective icons will also be selected automatically for that stream.
- To route a DM NAX (AES67) stream to the DM NVX device, select the  **DM NAX (AES67) Audio** icon in that stream's matrix column. To manage this independently of the AV-over-IP stream, the **DM NAX (AES67) Audio Follows Video** toggle must be set to the left.



- To route a USB signal to the DM NVX device, select the  **USB** icon in that stream's matrix column. This icon is only available on USB-capable endpoints. To manage this independently of the AV-over-IP stream, the **USB Follows Video** toggle must be set to the left.
- To break a route, do one of the following:
  - Select the  icon for a given input to clear all routes from that input.
  - Select the  icon for a given output to clear routes from that input. A **Select For Clear Route** window appears.



Select any or all of the signal types to clear all routes of those types from the output, then select **OK** to clear those routes or **Cancel** to cancel the operation.

## Subscriptions (Receiver Mode Only)

The **Subscriptions** accordion allows the DM NVX receiver to subscribe to discovered network AV-over-IP streams for quick routing and switching without having to manually enter multicast addresses or session names.

Subscriptions					
- Subscribed Streams					
No	Device Name	Stream Details	Bitrate	Actions	Reorder
1	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted), 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	Unsubscribe	

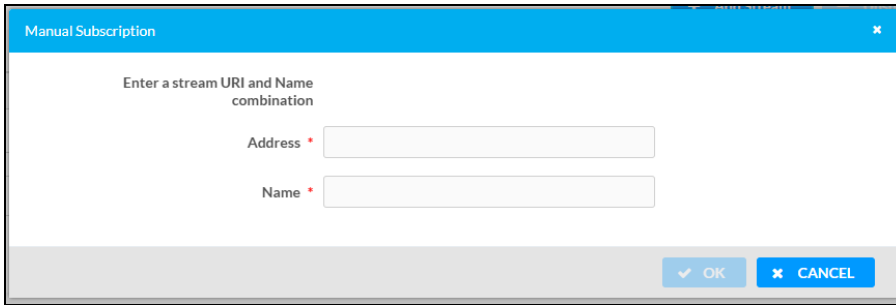
  

- Available Streams					
Device Name	Stream Details	Bitrate	Add Stream		
DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted) TS/RTP, 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	Subscribe		
DM-NVX-E760-00107F9CDC6D	Stream not started	686	Subscribe		
Input 9	rtsp://172.30.164.169:554/live.sdp (Encrypted) TS/RTP, 239.8.0.64	360	Subscribe		
DM-NVX-360-C4426858BF77	rtsp://172.30.164.163:554/live.sdp (Encrypted) TS/RTP, 239.8.0.0	686	Subscribe		

The **Subscribed Streams** table displays all network streams that the device is subscribed to. These streams are also available in the routing matrix in the **Routing** accordion. Refer to [Stream Routing \(Receiver Mode Only\) on page 396](#) for information on routing a subscribed stream.

To add a stream to the table, do either of the following:

- Select **+ Add Stream**. A **Manual Subscription** window appears.

A dialog box titled "Manual Subscription" with a blue header and a close button (X) in the top right. The main area contains the text "Enter a stream URI and Name combination" followed by two input fields: "Address" and "Name", each with a red asterisk to its left. At the bottom right, there are two buttons: "OK" with a checkmark icon and "CANCEL" with an X icon.

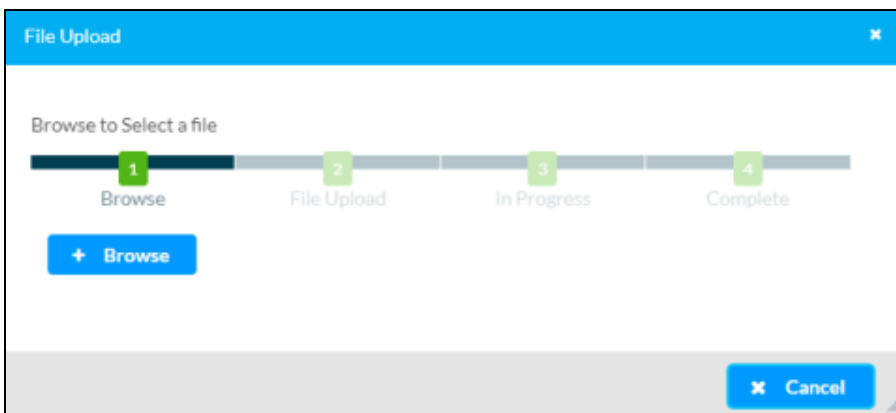
- Enter the multicast address of the stream in the **Address** field.
  - Enter the device name of the transmitting device in the **Name** field.
  - Select **✓ OK** to add the stream to the **Subscribed Streams** list or select **X Cancel** to cancel the operation.
- Select the **Subscribe** button for a stream listed in the **Available Streams** table.

To add multiple streams to the table at once, select the checkbox for each desired stream in the **Available Streams** table, then select **+ Subscribe Checked**.

To remove a stream from the table, select **x Unsubscribe** in its table row. To remove multiple streams at once, select the checkbox for each stream in the **Subscribed Streams** table, then select **- Unsubscribe** at the top of the table.

The **Subscribed Streams** table can also be exported as a .xml file to other DM NVX receivers. This allows the subscription process to be performed even more efficiently on other receivers. To export the table and upload it to another receiver:

1. Subscribe to all of the desired network streams.
2. Select **Save Subscription** at the top of the **Subscribed Streams** table. A .xml file will be downloaded to the connected PC.
3. Log in to the next DM NVX receiver's web interface and navigate to its **Subscriptions** accordion.
4. Select **Load Subscriptions** at the top of the **Subscribed Streams** table. A **File Upload** window appears.

A dialog box titled "File Upload" with a blue header and a close button (X) in the top right. The main area contains the text "Browse to Select a file" above a progress bar. The progress bar is divided into four segments: "1 Browse" (dark blue), "2 File Upload" (light blue), "3 In Progress" (light blue), and "4 Complete" (light blue). Below the progress bar is a blue button with a plus sign and the text "Browse". At the bottom right, there is a blue button with an X icon and the text "Cancel".

5. Select **+ Browse**. Locate the .xml file, then select **Upload** to upload it to the DM NVX device. When the upload completes, the window will close and the interface will return to the **Subscriptions** accordion with the **Subscribed Streams** table filled out.

## Inputs

The **Inputs** accordion contains source resolution and EDID information as well as input configuration options for the local input connector on the DM NVX device.

Name	Sync Detected	Resolution	EDID	HDCP Receiver Capability	Actions
INPUT 1	No	0x0@0	4K60 444 2CH Non-HDR	Auto	<a href="#">Edit</a>

To configure the input, select the **Edit** button. An **Edit Input** window appears.

## Edit Input

The **Edit Input** window will open to the **Settings** tab by default. This tab enables configuration of the available input settings for the HDMI input.

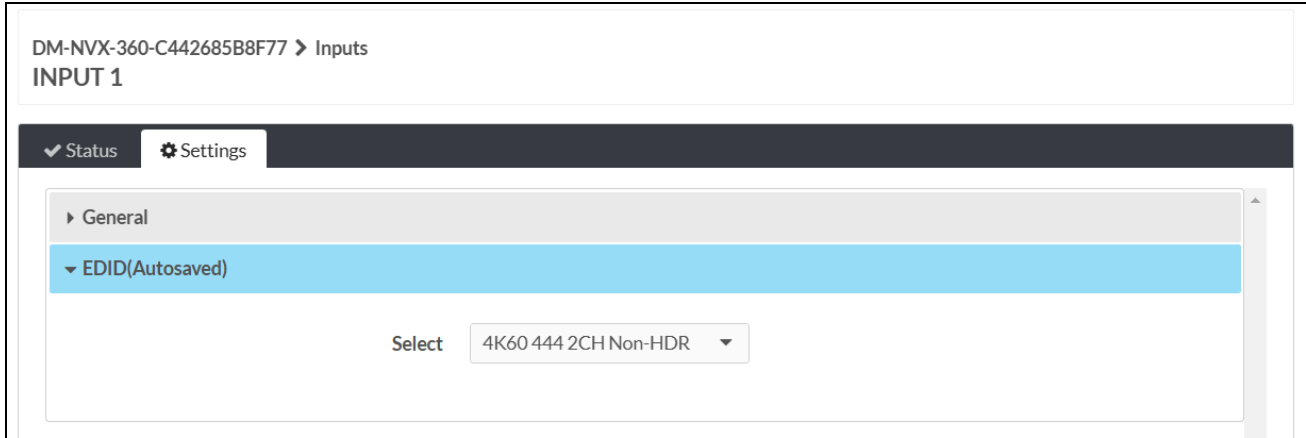
The **General** accordion is open by default.

Enter a friendly name for the input in the **Name** text entry field.

Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version. The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display.

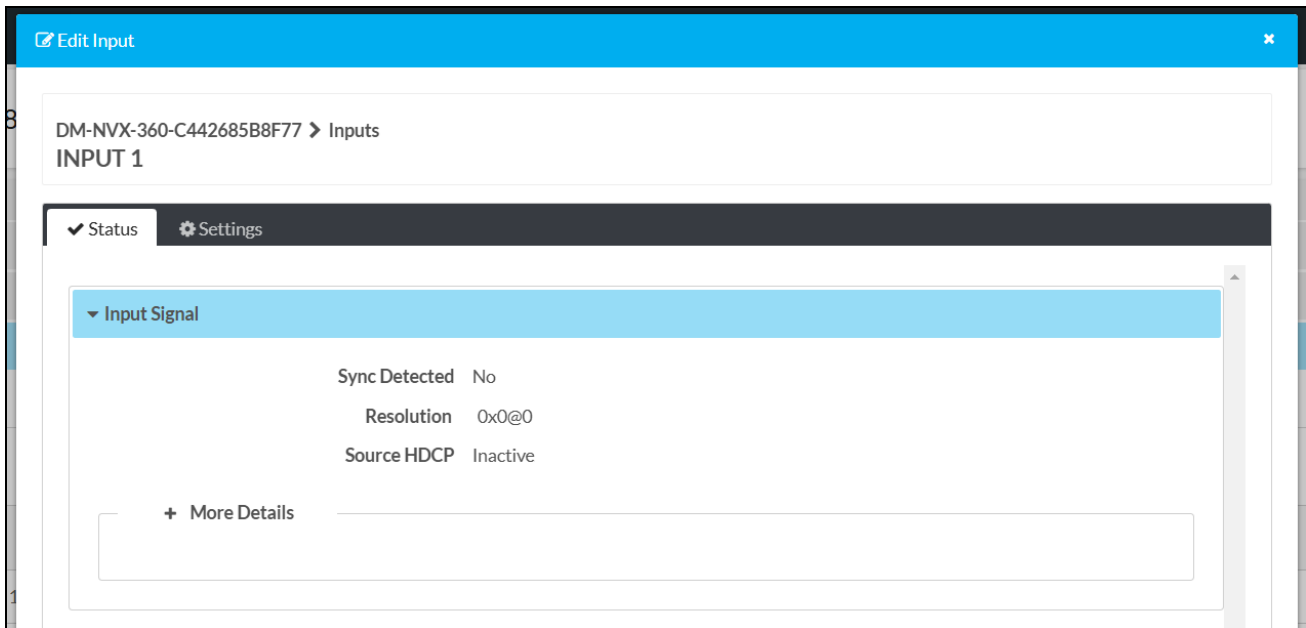
**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal. Select the **EDID** accordion to access EDID settings specific to the selected input.



Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 361](#) for more information on loading custom EDIDs to this list.

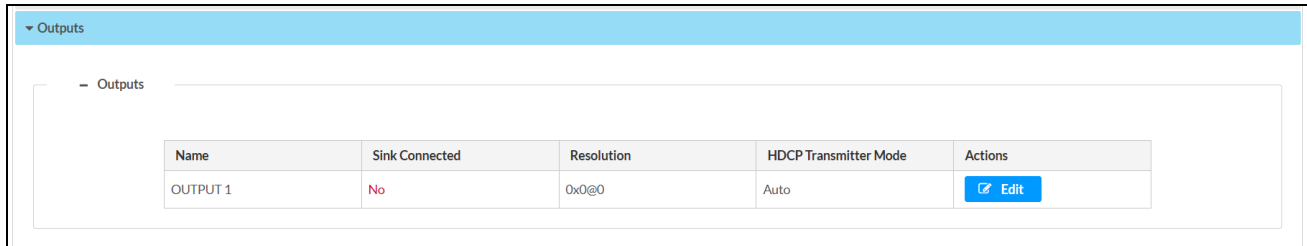
Select the **Status** tab to reference sync, resolution, HDCP, and audio information for the connector and input source.



Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.

## Outputs

The **Outputs** accordion contains status information and an **Edit** option for the local HDMI output connector on the DM NVX device.



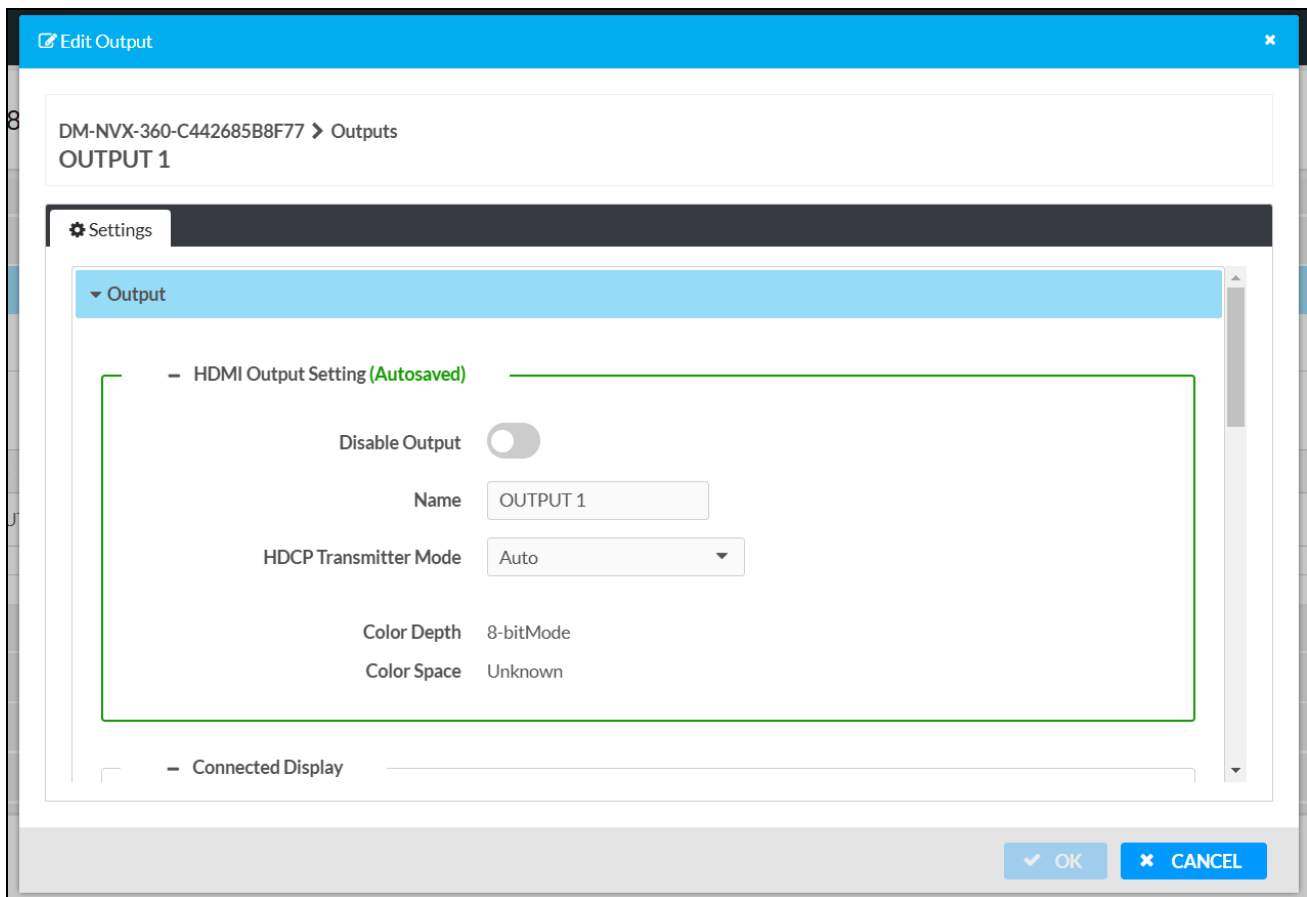
Name	Sink Connected	Resolution	HDCP Transmitter Mode	Actions
OUTPUT 1	No	0x0@0	Auto	<a href="#">Edit</a>

To configure the output, select the **Edit** button. An **Edit Output** window appears. The settings available in the **Edit Output** window depend on which mode the DM NVX device is in:

- [Edit Output - Output Accordion \(Transmitter Mode\) on page 401](#)
- [Edit Output - Output Accordion \(Receiver Mode\) on page 405](#)

### Edit Output - Output Accordion (Transmitter Mode)

The **Output** accordion is open by default.



DM-NVX-360-C442685B8F77 > Outputs  
OUTPUT 1

Settings

Output

HDMI Output Setting (Autosaved)

Disable Output

Name OUTPUT 1

HDCP Transmitter Mode Auto

Color Depth 8-bitMode

Color Space Unknown

Connected Display

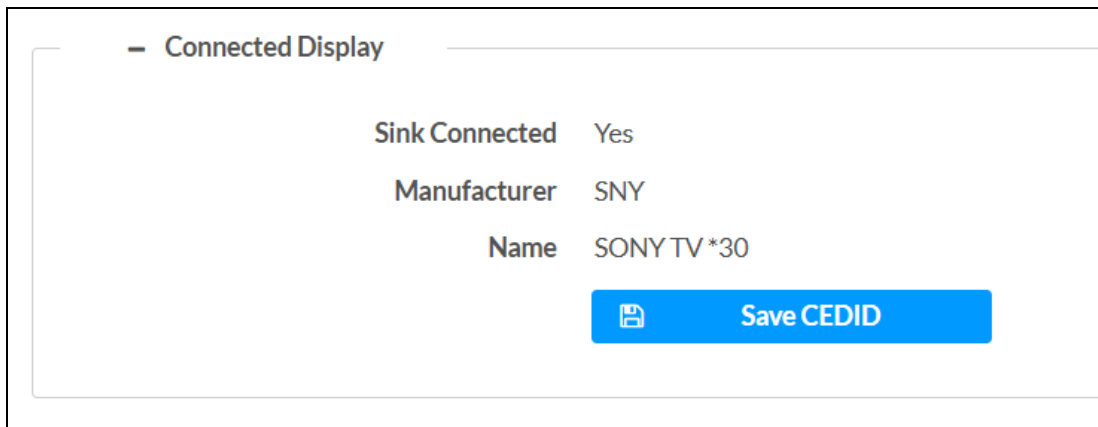
OK CANCEL

## HDMI Output Settings

Configure basic settings under the **HDMI Output Setting** subheading:

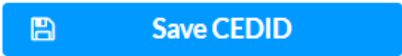
- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Enter a friendly name for the output in the **Name** text entry field.
- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **FollowInput:** The HDCP level of the output will match the HDCP level of the input connector currently routed to the output.
  - **Always:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the output.
  - **Never:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.

## Connected Display



The screenshot shows a settings panel titled "Connected Display". It contains three read-only fields: "Sink Connected" with the value "Yes", "Manufacturer" with the value "SNY", and "Name" with the value "SONY TV \*30". Below these fields is a blue button with a download icon and the text "Save CEDID".

Sink Connected	Yes
Manufacturer	SNY
Name	SONY TV *30



The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 361](#) for more information on loading custom EDID files.

## Output Signal

- Output Signal	
Transmitting	Yes
Resolution	3840x2160@60
Horizontal Resolution	3840
Vertical Resolution	2160
Frames PerSecond	60
Aspect Ratio	16:9
Audio Format	No Audio
Audio Channels	0

The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

## Analog Settings

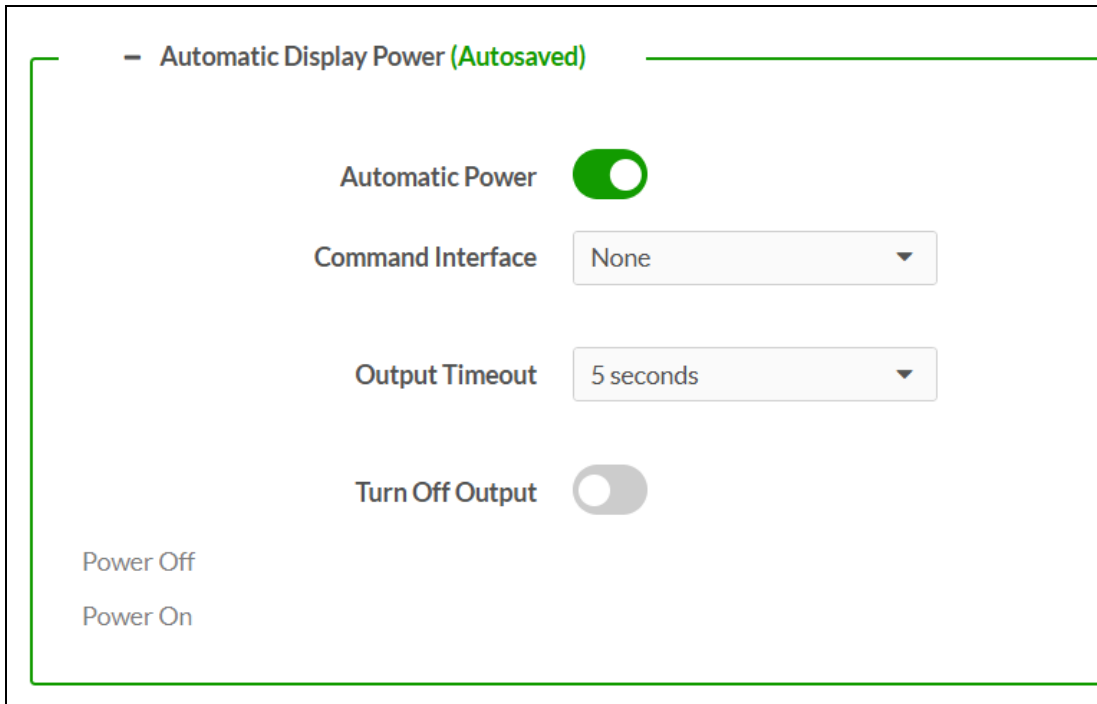
- Analog Settings (Autosaved)	
Analog Audio Volume *	<input type="range" value="0"/> -14 db

To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.

## Automatic Display Power



The screenshot shows a configuration panel titled "Automatic Display Power (Autosaved)". It contains four main settings:

- Automatic Power:** A green toggle switch is turned on.
- Command Interface:** A dropdown menu is set to "None".
- Output Timeout:** A dropdown menu is set to "5 seconds".
- Turn Off Output:** A grey toggle switch is turned off.

At the bottom left, there are two sub-sections: "Power Off" and "Power On", each with a corresponding input field for command strings.

The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**

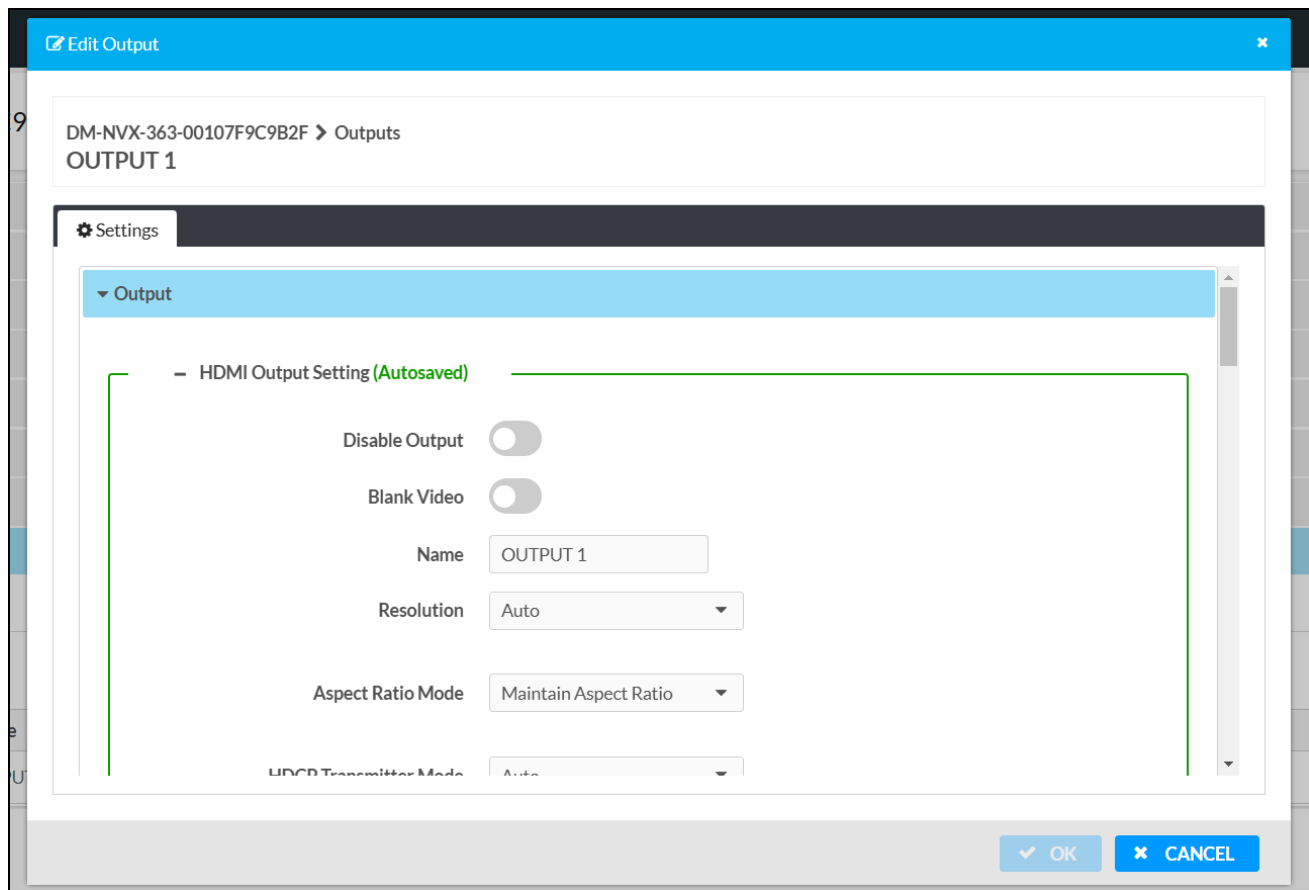
**NOTE:** **IR** and **RS-232** are not available on card-based models.

Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.



## Edit Output - Output Accordion (Receiver Mode)

The **Output** accordion is open by default.



### HDMI Output Settings

Configure basic settings under the **HDMI Output Setting** subheading:

- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Set the **Blank Output** toggle to the right to transmit a full-screen black video signal. Set the toggle to the left to transmit the video signal of the selected input.
- Enter a friendly name for the output in the **Name** text entry field.
- Use the **Resolution** drop-down to select between **Auto** or any of the available fixed resolutions to have the internal scaler either match the highest possible resolution of the display or the selected fixed resolution.

- Use the **Aspect Ratio Mode** drop-down to select between:
  - **Maintain Aspect Ratio:** The aspect ratio of the source signal is preserved at the output. This may result in letter-boxing or pillar-boxing black bars at the edges of the display area.
  - **Stretch To Fit:** The aspect ratio of the source signal is stretched to fit the aspect ratio of the display. This may distort the image of the incoming video signal.
  - **1:1 Pixel Mapping:** The source signal is mapped 1:1 at the display without any aspect ratio scaling. This will preserve the aspect ratio of the source signal, but may not fill the entire display area, resulting in black borders around the image.
  - **Zoom:** The aspect ratio of the source signal is zoomed in to meet the full height or width capabilities of the display, whichever is greater than the incoming signal. This may crop out parts of the incoming video signal.
- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **Follow Input:** The HDCP level of the output will be forced to the supported HDCP level of the local input.
  - **Force Highest:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the entire signal chain.
  - **Never Authenticate:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.
- Use the **Max Color Depth** drop-down to limit the color depth to a specific bit depth.
- Use the **Color Space Mode** drop-down to select between **Auto** or a specific color mode to force the output signal to.

**NOTE:** The options available in the **Max Color Depth** and **Color Space Mode** drop-downs may be limited by the resolution of the output signal. Refer to the maximum supported resolutions table in [DM-NVX-363 Specifications on page 169](#) for information on supported depths and spaces at each maximum resolution.


- The **Color Depth** and **Color Space** fields are read-only values that display the current depth and space of the video output signal, respectively.
- Use the **Underscan** drop-down to select an underscan percentage from between **0%**, **2.5%**, **5%**, **7.5%**, or **Custom**.
  - A value of **0%** will maintain the size of the source image area relative to the full video resolution and will preserve the image aspect ratio. Each higher value will shrink the size of the source image within its resolution while still preserving its aspect ratio. Any pixels outside of the image area in the full resolution will be filled by a black border.
  - When **Custom** is selected, the **Set Custom Underscan** text entry field will become available.
- Use the **Set Custom Underscan** field to enter an underscan percentage from 1 to 10% in integer values. This field is only available when **Custom** is selected in the **Underscan** drop-down.

- Set the **Disable Video Timeout** toggle to the right to prevent the output signal from turning off when a source signal is no longer detected. Set the toggle to the left to enable a video timeout. When the toggle is set to the left, the **Set Video Timeout** text box will become available.
- Use the **Set Video Timeout** text box to determine how long the device will wait to disable the HDMI output after an input video signal is no longer detected. Enter a time in seconds or use the arrows to set the timeout. By default, the timeout is set to 0 seconds. This text box is only available when the **Disable Video Timeout** toggle is set to the left.

### Connected Display

**— Connected Display**

<b>Sink Connected</b>	Yes
<b>Manufacturer</b>	SNY
<b>Name</b>	SONY TV*30



The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 361](#) for more information on loading custom EDID files.

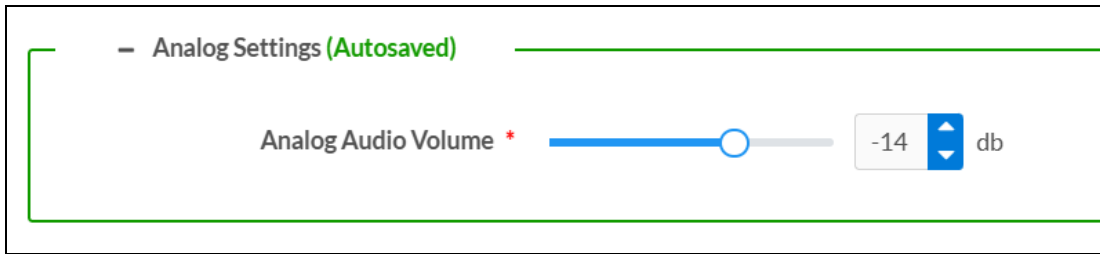
### Output Signal

**— Output Signal**

<b>Transmitting</b>	Yes
<b>Resolution</b>	3840x2160@60
<b>Horizontal Resolution</b>	3840
<b>Vertical Resolution</b>	2160
<b>Frames PerSecond</b>	60
<b>Aspect Ratio</b>	16:9
<b>Audio Format</b>	No Audio
<b>Audio Channels</b>	0

The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

### Analog Settings

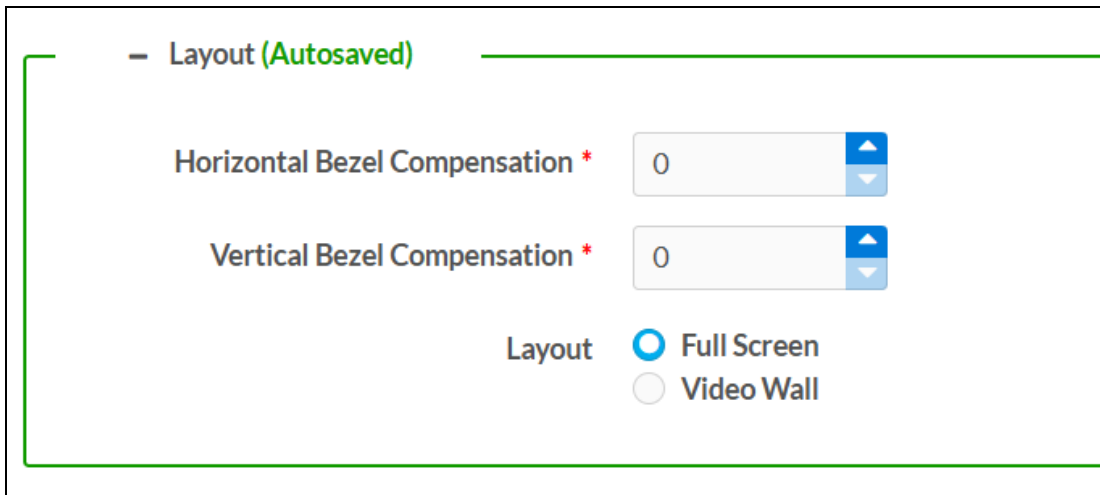


To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.

### Layout



Use the settings under the **Layout** subheading to manage the bezel compensation of the output signal and to enable video wall mode.

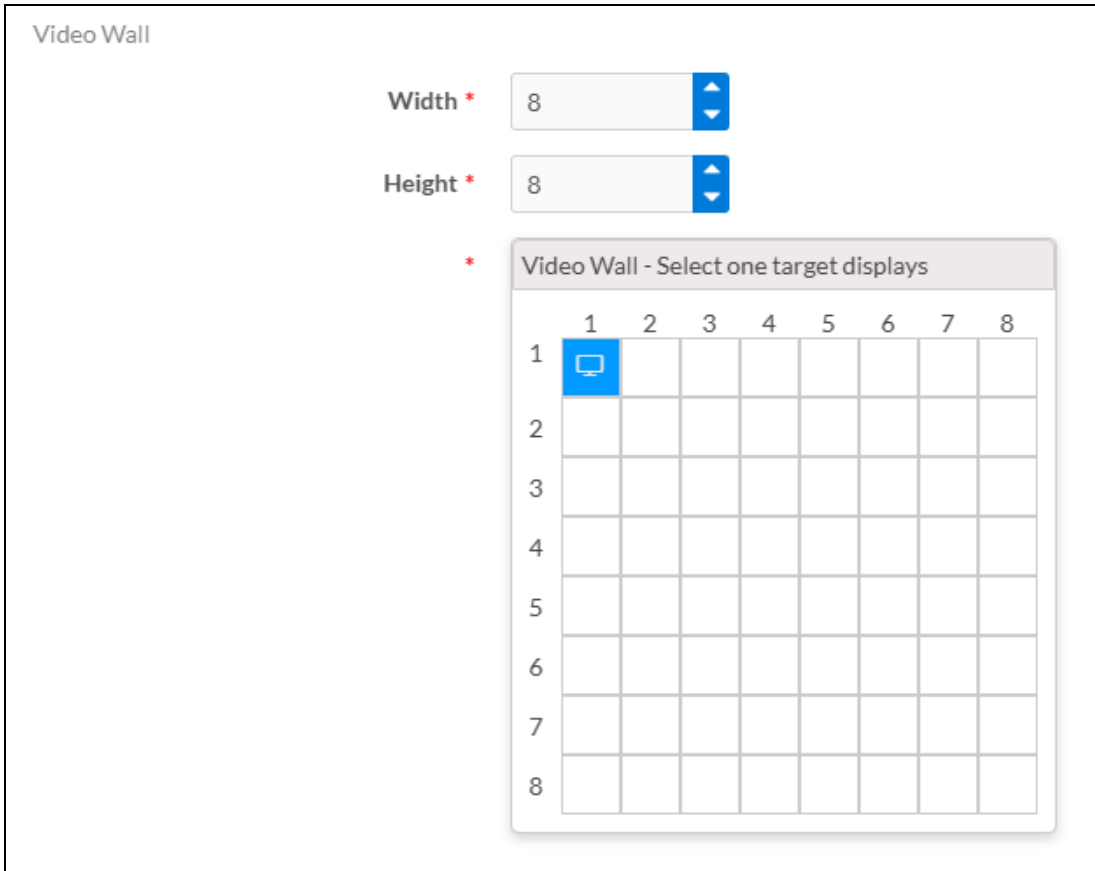
The **Bezel Compensation** fields allow the output signal to compensate for the width of the bezels on the display to provide a more seamless appearance in video wall mode. To adjust the bezel compensation:

- Use the arrows or enter a value in the **Horizontal Bezel Compensation** field. This sets the width of the bezels on the left and right of the display. Values range from 0 to 500 pixels.
- Use the arrows or enter a value in the **Vertical Bezel Compensation** field. This sets the height of the bezels on the top and bottom of the display. Values range from 0 to 500 pixels.

Multiple DM NVX decoder devices with output scalers can be combined to form a video wall composed of up to 64 individual displays (8 columns by 8 rows). A separate scaling decoder is required for each display. To enable video wall mode, select **Video Wall** from the **Layout** options.

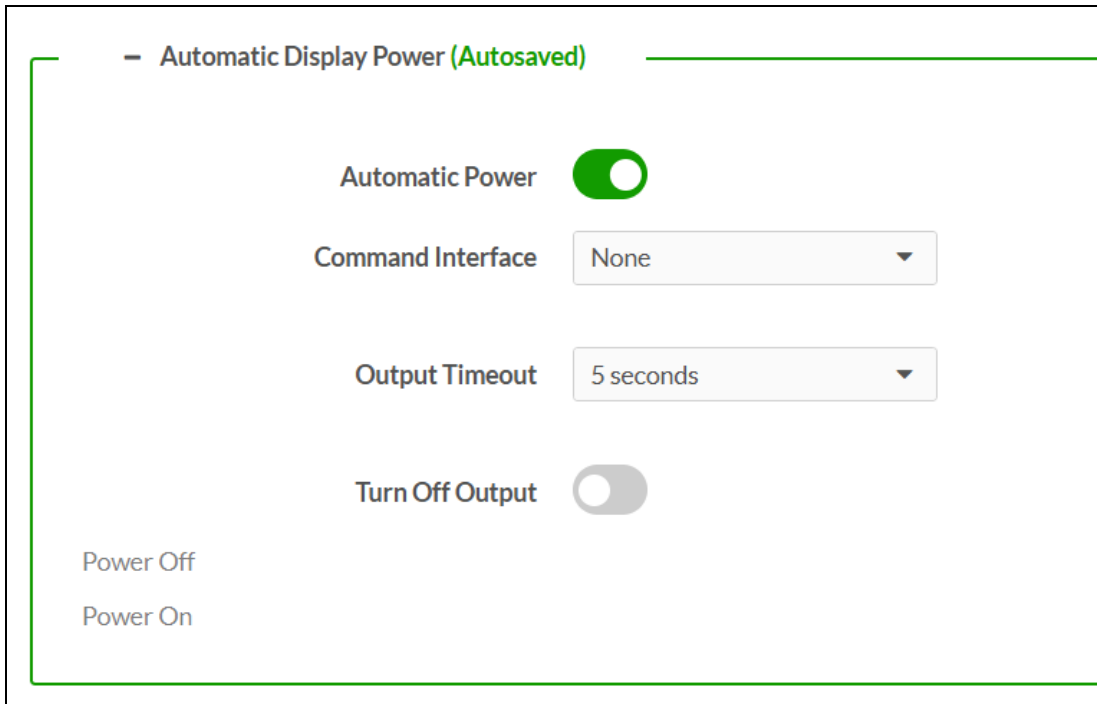
To configure the video wall:

1. Use the arrows or enter a value to set the **Width** text box to the desired number of columns of displays. Values range from 1 to 8. The default value is 1.
2. Use the arrows or enter a value to set the **Height** text box to the desired number of rows of displays. Values range from 1 to 8. The default value is 1.
3. Select the desired location for the current DM NVX device among the video wall by selecting its corresponding rectangle. In the image below, the DM NVX decoder being configured will output video to the top left display in an 8x8 video wall.



4. Repeat this process on all DM NVX decoders in the video wall.

## Automatic Display Power



The screenshot shows a settings panel titled "Automatic Display Power (Autosaved)". It contains four main settings:

- Automatic Power:** A green toggle switch is turned on.
- Command Interface:** A dropdown menu is set to "None".
- Output Timeout:** A dropdown menu is set to "5 seconds".
- Turn Off Output:** A grey toggle switch is turned off.

At the bottom of the panel, there are two subheadings: "Power Off" and "Power On", each followed by a text input field.

The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**.

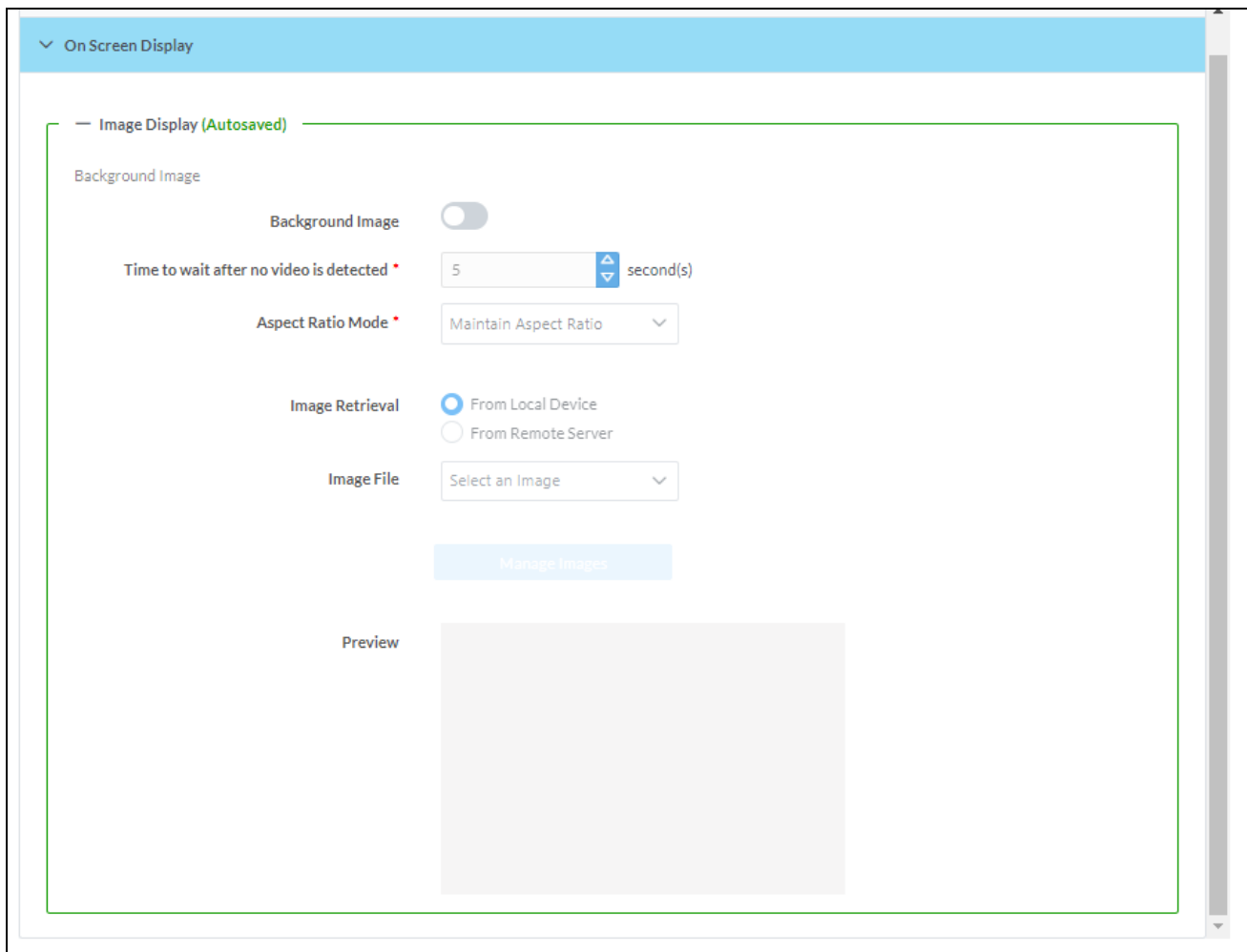
**NOTE:** **IR** and **RS-232** are not available on card-based models.

Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.

### Edit Output - On Screen Display Accordion (Receiver Mode)

Select the **On Screen Display** accordion to expand it. This accordion houses the **Image Display** settings that allow a static background image to be shown on the connected display.

**CAUTION:** Displaying a static image for extended periods of time may result in image burn-in on any type of connected display. Consult documentation from the display manufacturer to determine recommended timeout or image refresh settings to avoid burn-in.



To configure the **Image Display** settings:

1. Set the **Background Image** toggle to the right to display a background image on the connected display, and to make all the other settings in the accordion available for configuration.
2. Enter a value in the **Time to wait after no video is detected** field from 5 seconds to 65,535 seconds to determine how long the device will wait after input signal is no longer detected before displaying the background image.
3. Use the **Aspect Ratio Mode** drop-down to select one of the following:
  - **Maintain Aspect Ratio:** The aspect ratio of the background image is preserved at the output. This may result in letterboxing or pillarboxing black bars at the edges of the display area.
  - **Stretch:** The aspect ratio of the background image is stretched to fit the aspect ratio of the display. This may distort the background image.
  - **1:1:** The background image is mapped 1:1 at the display without any aspect ratio scaling. This will preserve the aspect ratio of the image, but may not fill the entire display area, resulting in black borders around the image.

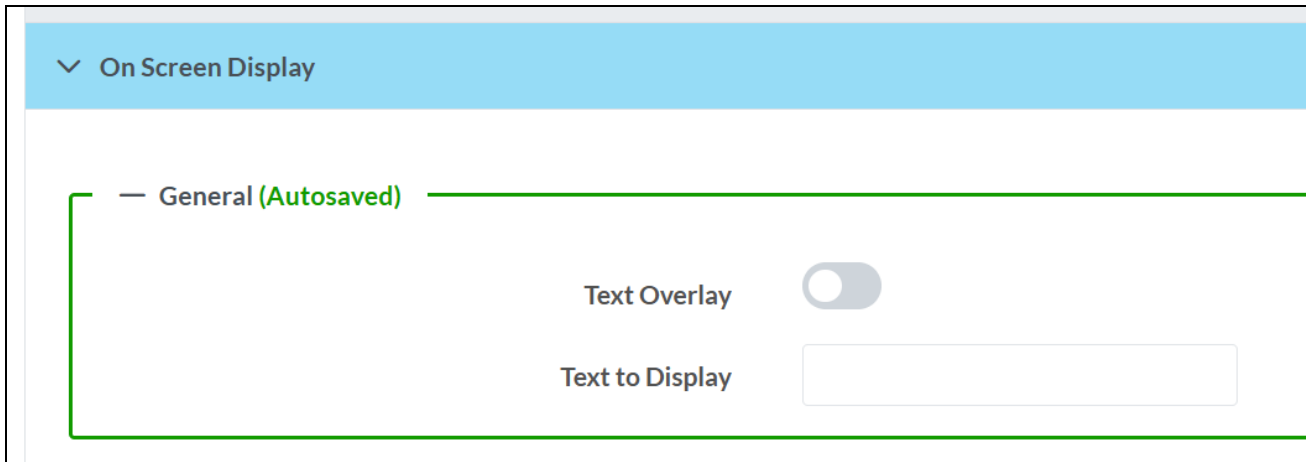
4. Select an option for **Image Retrieval**:

- **From Local Device:** Select this option if an image stored locally on the DM NVX device will be used as the background image. Select the desired image from the **Image File** drop-down. To load custom images to the DM NVX device, select **Manage Images** from the **Edit Output** window or from the **Action** menu. Refer to [Action on page 361](#) for more information.
- **From Remote Server:** Select this option if an image hosted on a network server will be used as the background image. Enter the network file path to the image in the **Remote Path** field.
  - This option also allows the DM NVX device to refresh the image at a given interval. To have the DM NVX refresh the image, select the **Refresh** checkbox below the **Image Preview**, then enter a refresh rate in minutes from 1 to 65,535 minutes. The default refresh rate is 60 minutes.

To disable the background image, set the **Background Image** toggle to the left.

## On Screen Display

The **On Screen Display** accordion enables setting a text string to overlay onto the video output signal.



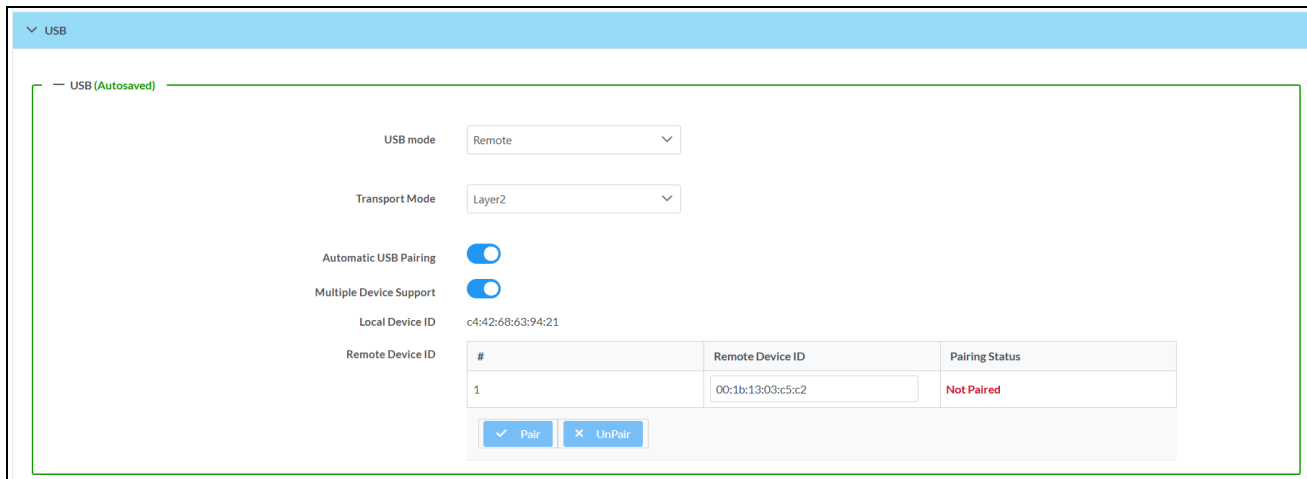
To add a text string to the video output signal:

1. Set the **Text Overlay** toggle to the right to enable the feature.
2. Enter the desired text string in the **Text to Display** field.



# USB

Use the **USB** accordion to configure USB-over-Ethernet settings for the DM NVX device.



To configure USB routing, follow the steps below. These steps must be repeated on both devices in a given USB pairing for the two devices to pair successfully:

1. Select a **USB mode** from the drop-down:
  - In **Local** mode, USB signals from another **Remote** device on the network are extended to the **DEVICE** connector of the DM NVX device.
  - In **Remote** mode, USB devices connected to the **HOST** ports are extended over the network to a **Local** device.
2. Select a **Transport Mode** from the drop-down:
  - **Layer 2:** Enables Layer 2 transport of USB 2.0 data. This mode is compatible with DM-NVX-35x(C), DM-NVX-36x(C), DM-NVX-38X(C), and DM NUX USB-over-Ethernet devices ([DM-NUX-L2](#) and [DM-NUX-R2](#)). Devices will pair via MAC address.
  - **Layer 3:** Enables Layer 3 transport of USB 2.0 data across VLANs. This mode is compatible with DM-NVX-35x(C), DM-NVX-36x(C), and DM-NVX-38X(C) devices. Devices will pair via IP address.

**NOTE:** This mode is not compatible with DM NUX USB-over-Ethernet devices.

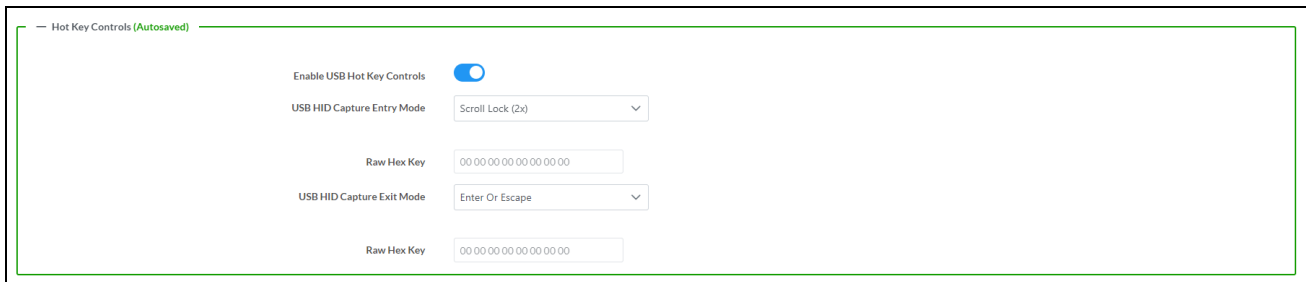
3. Set the **Automatic USB Pairing** toggle to the right to enable or left to disable **Automatic Pairing**. With **Automatic Pairing** enabled, once a **Remote Device ID** is entered in the **Remote Device ID** table, and the corresponding device also has the matching **Remote Device ID** entered in its table, the devices will pair automatically.
4. Set the **Multiple Device Support** toggle to the right to right to enable or left to disable **Multiple Device Support**. If the device is set to **Local** mode and **Layer 2** transport, **Multiple Device Support** allows it to receive USB data from up to seven **Remote** extenders. A hub must be used to connect devices to the **TO DEVICE** port of each DM NVX **Remote** extender.

5. Enter the applicable ID strings in the **Remote Device ID** table:
  - If the device is set to **Local** mode and **Layer 2** transport, enter the MAC address of each remote extender. **Multiple Device Support** must be enabled to enter more than one remote extender.
  - If the device is set to **Local** mode and **Layer 3** transport, enter the IP address of the remote extender.
  - If the device is set to **Remote** mode and **Layer 2** transport, enter the MAC address of the local extender.
  - If the device is set to **Remote** mode and **Layer 3** transport, enter the IP address of the local extender.
6. Once the ID strings have been entered on both the local and remote devices, select **Pair** to pair the devices. If **Automatic USB Pairing** is enabled, pairing will occur automatically once the ID strings have been entered.

To remove pairing between DM NVX devices:

- If **Automatic USB Pairing** is disabled, select **UnPair**.
- If **Automatic USB Pairing** is enabled and **Layer 2** transport is selected, enter a MAC address of 00:00:00:00:00:00 in the **Remote Device ID** field.
- If **Automatic USB Pairing** is enabled and **Layer 3** transport is selected, enter an unused IP address in the **Remote Device ID** field.

The **Hot Key Controls** portion of the accordion provides settings for entering and exiting USB HID capture mode. USB HID capture mode allows HID keyboard presses to output serial data from the USB Hotkey symbol of the DM NVX device's SIMPL Windows device definition. Refer to the [USB Hotkey symbol help file](#) for more information on using this symbol in a SIMPL Windows control system program.



To configure the **Hot Key Controls** settings:

1. Set the **Enable USB Hot Key Controls** toggle to the right to enable the **USB HID Capture Entry Mode** and **USB HID Capture Exit Mode** hot keys. Set the toggle to the left to disable the hot keys.
2. Select a **USB HID Capture Entry Mode** hot key option from the drop-down. This is the HID keyboard key (or combination of keys) that will put the **USB Hotkey** SIMPL symbol into HID capture mode. While in this mode, any HID keyboard presses will output as raw hex data on the **Message\_F** serial join of the symbol.
  - a. If **Custom** was selected from the drop-down, enter the serial data for the key (or keys) into the **Raw Hex Key** text entry. This data can be pulled from the **USB Hotkey** SIMPL symbol's **Message\_F** serial join via the SIMPL Debugger utility in Crestron Toolbox™ software.

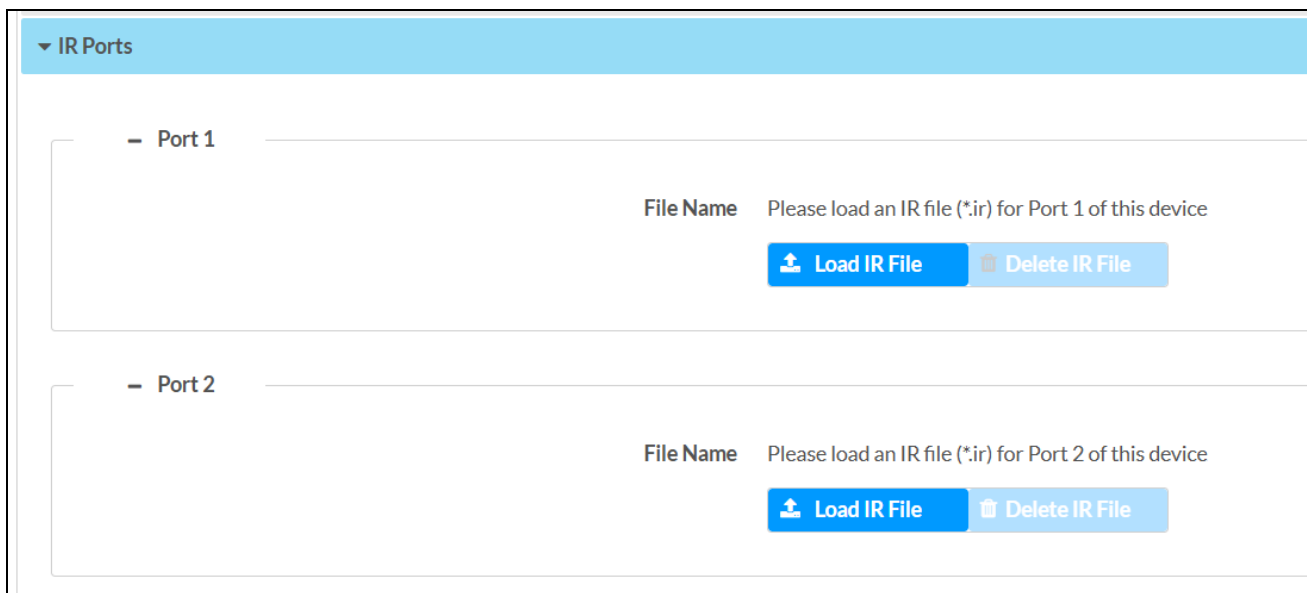
3. Select a **USB HID Capture Exit Mode** hot key option from the drop-down. This is the HID keyboard key (or combination of keys) that will exit the **USB Hotkey SIMPL** symbol from HID capture mode.
  - a. If **Custom** was selected from the drop-down, enter the serial data for the key (or keys) into the **Raw Hex Key** text entry. This data can be pulled from the **USB Hotkey SIMPL** symbol's **Message\_F** serial join via the SIMPL Debugger utility in Crestron Toolbox™ software.

**NOTE:** While in **USB HID Capture Mode**, all HID data from a connected keyboard is output as raw hex data from the SIMPL symbol's **Message\_F** serial join instead of being forwarded to a connected Host device.

## IR Ports

**NOTE:** This accordion is not available on card-based models.

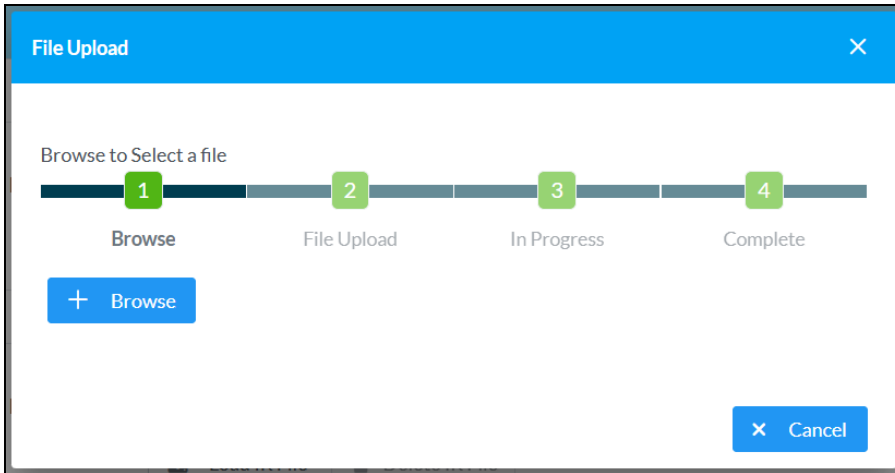
The **IR Ports** accordion allows custom IR files containing device commands to be uploaded to the DM NVX device for each IR connector. Custom IR files can be generated via the [Device Learner](#) utility within Crestron Toolbox software. Each IR port can hold only one IR file at a time. IR files must be loaded to each port individually.



The screenshot displays the 'IR Ports' configuration interface. It features a light blue header with a dropdown arrow and the text 'IR Ports'. Below the header, there are two accordion-style sections, one for 'Port 1' and one for 'Port 2'. Each section contains a 'File Name' label followed by a text prompt: 'Please load an IR file (\*.ir) for Port 1 of this device' for Port 1 and 'Please load an IR file (\*.ir) for Port 2 of this device' for Port 2. Underneath each prompt are two buttons: a blue 'Load IR File' button with an upload icon and a light blue 'Delete IR File' button with a trash icon.

To upload an IR file to a given IR port:

1. Select **Load IR File**.
2. In the **File Upload** window that appears, select **+ Browse**.



3. Locate and select the desired IR file, then select **Open**. The selected file name is displayed.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The IR file is now loaded to the IR port.

Once the IR file is uploaded, its filename will appear next to the IR port it was uploaded to. A read-only table showing all included commands will also appear and populate.

<b>File Name</b>	TV.ir									
<b>Commands</b>	<table border="1"><thead><tr><th>IR Code</th><th>IR Command</th></tr></thead><tbody><tr><td>1</td><td>On</td></tr><tr><td>2</td><td>Off</td></tr><tr><td>3</td><td>Input</td></tr></tbody></table>	IR Code	IR Command	1	On	2	Off	3	Input	
IR Code	IR Command									
1	On									
2	Off									
3	Input									

To delete an IR file from a given IR port, select **Delete IR File**.

## Port Selection

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment device management, video, AES67, and USB traffic to discrete Ethernet ports. With **Port Selection** disabled, the additional Ethernet ports of the DM NVX device can be used as courtesy ports to extend the connected LAN to a local network device. With **Port Selection** enabled on all DM NVX devices on a network, traffic types can be physically separated from the control network onto dedicated networks.

▼ Port Selection

<b>Port Selection</b>	<input checked="" type="checkbox"/>
<b>Management</b>	Port1 ▼
<b>Video</b>	Port1 ▼
<b>Audio/NAX</b>	Port1 ▼
<b>USB</b>	Port1 ▼

To configure **Port Selection**:

1. Set the **Port Selection** toggle to the right to enable **Port Selection**. Set the toggle to the left to disable **Port Selection**. By default, **Port Selection** is disabled.
2. With **Port Selection** enabled:
  - a. Select an Ethernet port from the **Management** drop-down to designate it to handle network traffic relating to device configuration and connection to a control system.
  - b. Select an Ethernet port from the **Video** drop-down to designate it to handle the DM NVX AV-over-IP streaming network traffic.
  - c. Select an Ethernet port from the **Audio/NAX** drop-down to designate it to handle DM NAX (AES67) audio-over-IP streaming network traffic.

**NOTE:** The audio signal in the primary DM NVX AV-over-IP stream will still traverse the port designated by the **Video** drop-down. The **Audio/NAX** drop-down only designates the port for the secondary audio stream.

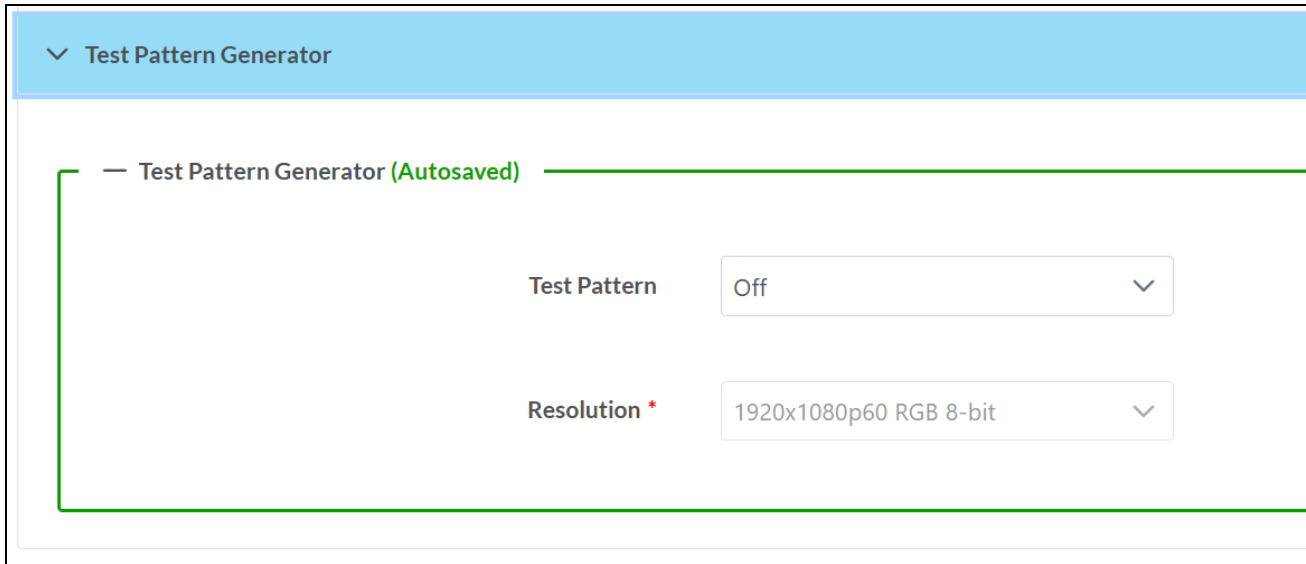
- d. Select an Ethernet port from the **Dante** drop-down to designate it to handle Dante audio-over-IP streaming network traffic (DM-NVX-363 and DM-NVX-363C only).
  - e. Select an Ethernet port from the **USB** drop-down to designate it to handle USB-over-Ethernet traffic.
3. Select **Save** to apply the new settings.

**NOTE:** Changes to **Port Selection** will require a device reboot.

## Test Pattern Generator

The **Test Pattern Generator** accordion contains settings for enabling various video test patterns to replace the DM NVX AV-over-IP video output signal.

**NOTE:** The **Test Pattern Generator** accordion is only available when the device is set to **Transmitter** mode.



To set a test pattern:

1. Use the **Test Pattern** drop-down to select an available pattern from among **Off**, **SMPTE ColorBars**, **Black**, **White**, **Vertical Lines**, **Grid**, **Color Bars**, **Gray Gradient**, **RGB Gradient**, and **Frequency Adjust**. Refer to the table below for a reference of each pattern.
2. Use the **Resolution** drop-down to select a resolution for the selected test patten.

#### Available Test Patterns

**SMPTE ColorBars**



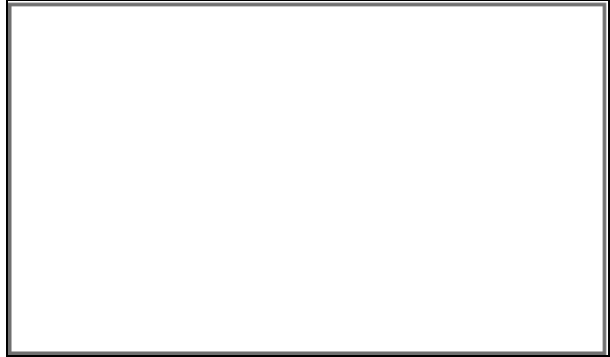
---

**Black**



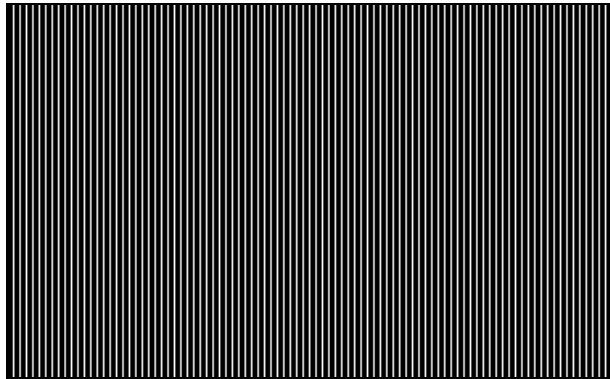
---

**White**



---

**Vertical Lines**

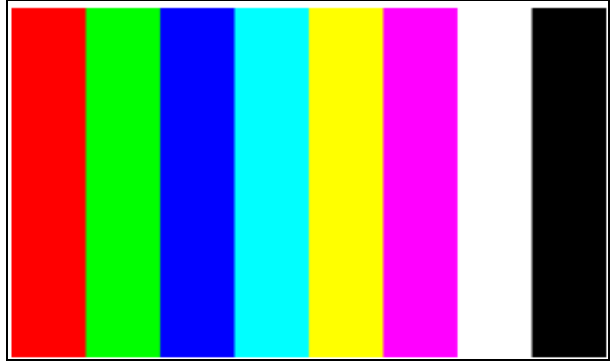


---

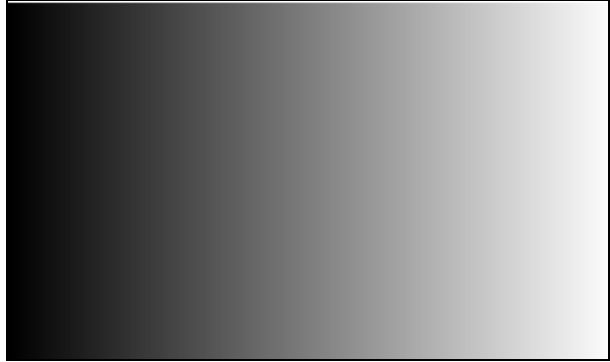
**Grid**



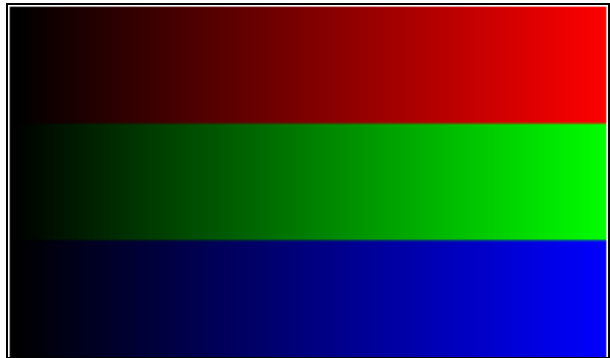
**Color Bars**



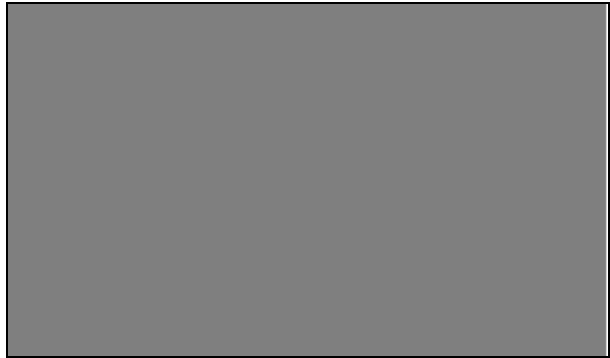
**Gray Gradient**



**RGB Gradient**



**Frequency Adjust**



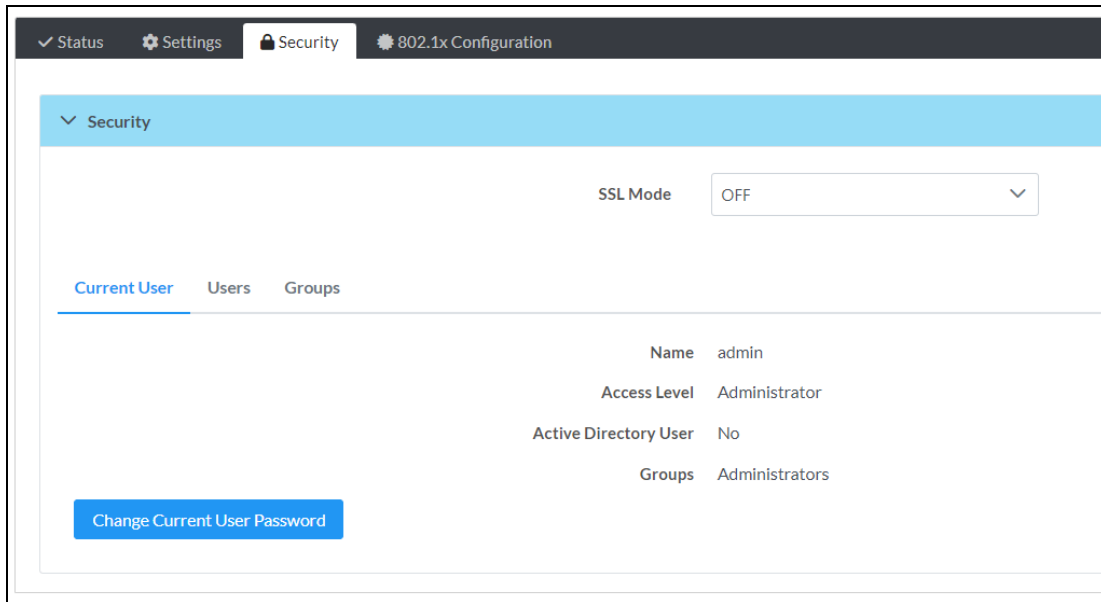


# Security

**NOTE:** This section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

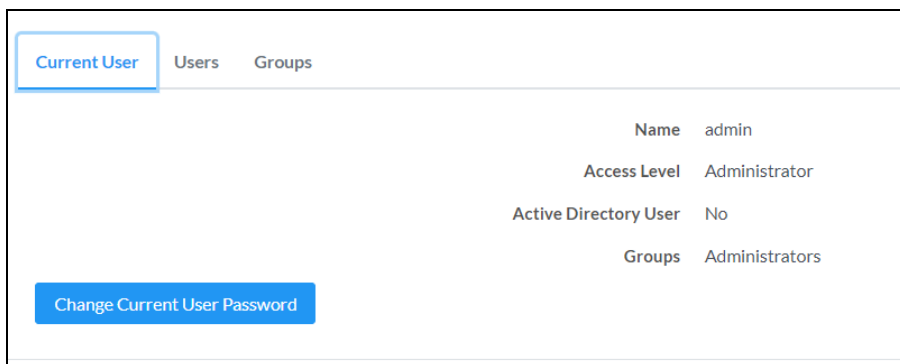
Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM NVX device functions. By default, security is disabled.



Select **Encrypt and Validate**, **Encrypt**, or **OFF** from the **SSL Mode** drop-down menu to specify whether to use encryption. By default, **SSL Mode** is set to **OFF**.

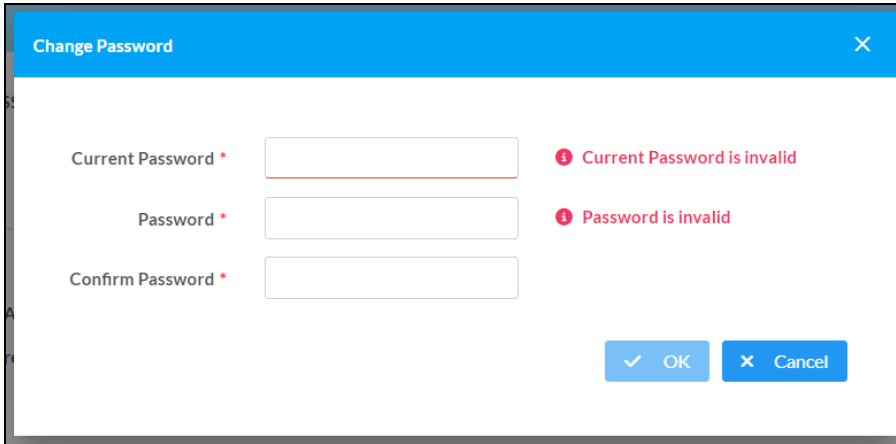
## Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



To change the password for the current user account:

1. Select **Change Current User Password**.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.

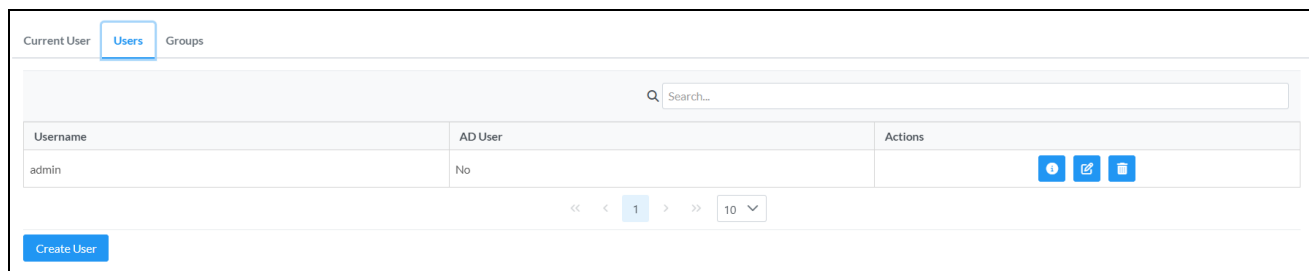


The image shows a 'Change Password' dialog box with a blue header and a white body. It contains three input fields: 'Current Password \*', 'Password \*', and 'Confirm Password \*'. Each field has a red error message to its right: 'Current Password is invalid', 'Password is invalid', and 'Confirm Password is invalid'. At the bottom right, there are two buttons: 'OK' (with a checkmark icon) and 'Cancel' (with an 'X' icon).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



The image shows a 'Users' management interface. At the top, there are tabs for 'Current User', 'Users', and 'Groups'. Below the tabs is a search bar with a magnifying glass icon and the text 'Search...'. Below the search bar is a table with three columns: 'Username', 'AD User', and 'Actions'. The table contains one row with the username 'admin' and 'AD User' set to 'No'. The 'Actions' column for the 'admin' user has three icons: an information icon (i), an edit icon (pencil), and a delete icon (trash). Below the table is a pagination control with arrows and the number '1' in a box, followed by a dropdown menu showing '10'. At the bottom left, there is a 'Create User' button.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

- **Username:** Displays the name of the user.
- **AD User:** Displays whether the user requires authentication using Active Directory.

Select the information icon  in the **Actions** column to view detailed user information, or select the delete icon  to delete a user.

To create a new user, select **Create User**.

## Create a New Local User

To create a new local user:

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
  - c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

**NOTE:** Make sure that the **Active Directory User** toggle is set to the left (disabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Grant Access to an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM NVX device, or add the Active Directory group(s) that they are a member of to the DM NVX device. Refer to [Grant Access to an Active Directory Group on page 426](#) for steps on granting access to a group.

To grant access to an Active Directory user directly:

1. Select **Create User**.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Select one or more groups from the **Groups** drop-down list.


**NOTE:** Make sure that the **Active Directory User** toggle is set to the right (enabled).

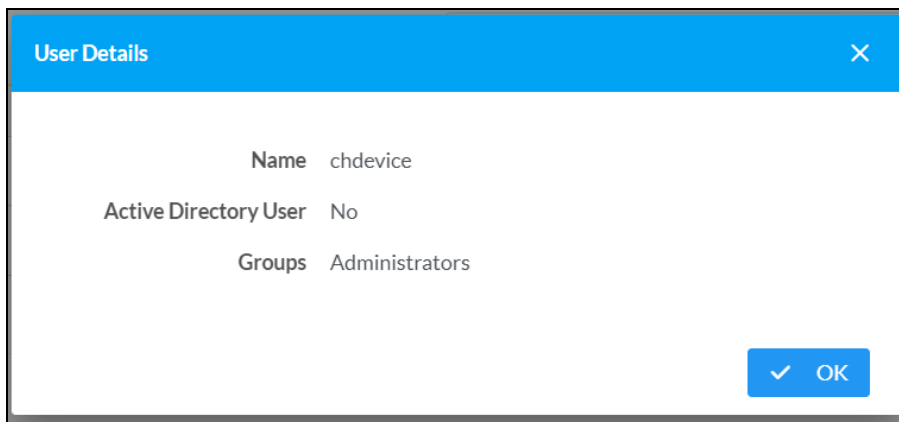
3. Select **OK** to save or select **Cancel** to cancel the changes.

## Delete a User

To delete a user, select the trashcan icon  in the **Actions** column. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

## View User Details

Select the information icon  in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.




The fields displayed in the **User Details** window are:

- **Name:** Displays the name of the selected user.
- **Active Directory User:** Displays whether the user is an Active Directory user.
- **Group:** Displays group(s) the selected user is part of.

Select **OK** to close the **User Details** window and return to the **Users** tab.

## Update User Details

To update the details for an existing user:

1. Select the edit icon  in the **Actions** column to update information for the selected user.
2. Set the **Active Directory User** toggle to the right if the user is an Active Directory user, or to the left if the user is not.
3. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
4. Select one or more groups to assign the user to from the **Groups** drop-down list. Deselect any groups to remove the user from those groups.

**NOTE:** After a user is removed from a group, they lose any access rights associated with that group.

5. Select **OK** to save or select **Cancel** to cancel the changes.

**NOTE:** The **Name** field is a read-only field that displays the username for the selected user. To change a username, the user must be deleted and a new user must be added.

## Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.

Group Name	AD Group	Access Level	Actions
Administrators	No	Administrator	
Connects	No	Connect	
Operators	No	Operator	
Programmers	No	Programmer	
Users	No	User	

Navigation: << < 1 > >> 10 ▾



[Create Group](#)

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **AD Group:** Displays whether the group requires authentication using Active Directory.
- **Access Level:** Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the information icon  in the **Actions** column to view detailed group information, or select the delete icon  to delete a group.

Select **Create Group** in the **Groups** tab to create new group.

## Create a Local Group

To create a local group:

1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the left (disabled).

3. Select **OK** to save. Select **Cancel** to cancel the changes.

## Grant Access to an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing Active Directory group.

Once the group is added, all members of that group will have access to the DM NVX device.

To grant access to an Active Directory group:

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
  - a. Enter the group name in the **Name** field (for example, "Engineering Group").


**NOTE:** Group names are case sensitive, and a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the right (enabled).


4. Select **OK** to save. Select **Cancel** to cancel the changes.

## Delete a Group

Select the trashcan icon  in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

## View Group Details

Select the information icon  in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group:

- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and return to the **Groups** tab.

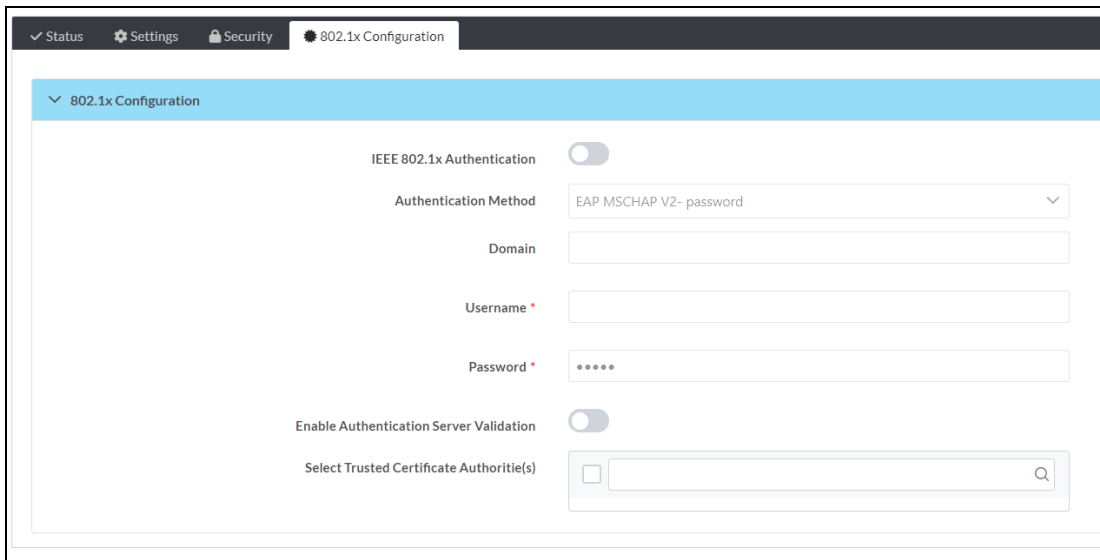
# 802.1X Configuration

**NOTE:** This section applies to the following models:

- DM-NVX-360
- DM-NVX-360C
- DM-NVX-363
- DM-NVX-363C

DM NVX devices have built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs, relying on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

The **802.1X Configuration** page can be accessed at any time by selecting the **802.1X Configuration** tab of the interface.



The screenshot shows the '802.1X Configuration' page in a web interface. The page has a navigation bar at the top with 'Status', 'Settings', 'Security', and '802.1X Configuration' tabs. Below the navigation bar, there is a section titled '802.1X Configuration'. The main content area contains the following configuration options:

- IEEE 802.1X Authentication:** A toggle switch that is currently turned off.
- Authentication Method:** A dropdown menu with 'EAP MSCHAP V2- password' selected.
- Domain:** An empty text input field.
- Username \*:** An empty text input field.
- Password \*:** A text input field with masked characters (dots).
- Enable Authentication Server Validation:** A toggle switch that is currently turned off.
- Select Trusted Certificate Authority(ies):** A search input field with a magnifying glass icon.

## Configure the Device for 802.1X Authentication

To configure the DM NVX device for 802.1X Authentication:

1. Set the **IEEE 802.1X Authentication** toggle to the right. This will enable all options on the 802.1X dialog.
2. Select an **Authentication Method**: Choose between **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.



3. Do one of the following:
  - a. If **EAP-TLS Certificate** was selected: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
  - b. If EAP-MSCHAP V2 Password was selected: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields, respectively. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded onto the DM NVX device.

Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu. Refer to [Action on page 361](#) for more information on the **Manage Certificates** function.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and reboot it. Select **Revert** to cancel any changes.

# Configuration (DM-NVX-38X Models)

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

## Web Interface Configuration

The web interface of a DM NVX AV-over-IP device allows for the viewing of status information as well as the configuration of local device settings.

### Access the Web Interface

To access the web interface, refer to either of the following:

- [Access the Web Interface with a Web Browser on page 430](#)
- [Access the Web Interface with the Crestron Toolbox™ Application on page 432](#)

The web interface runs in a web browser. The following web browser versions are supported:

#### Operating System and Supported Web Browsers

OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

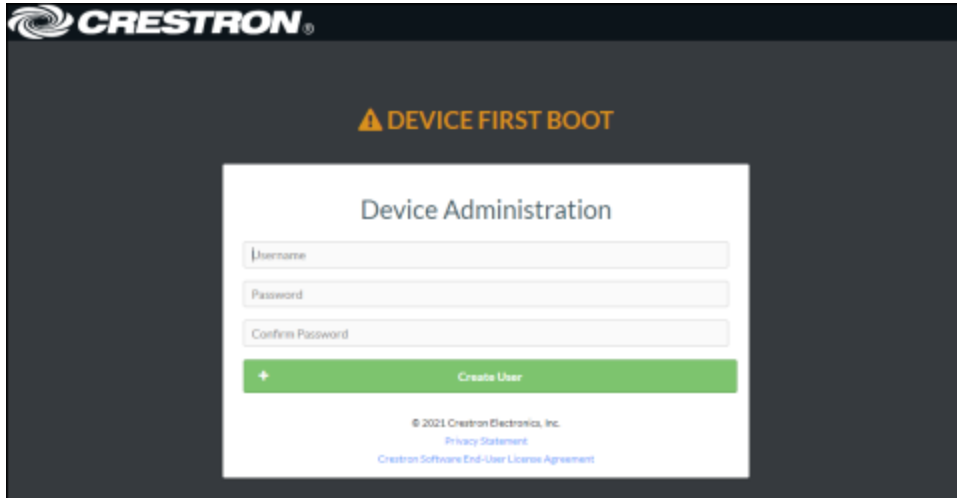
### Access the Web Interface with a Web Browser

To access the web interface:

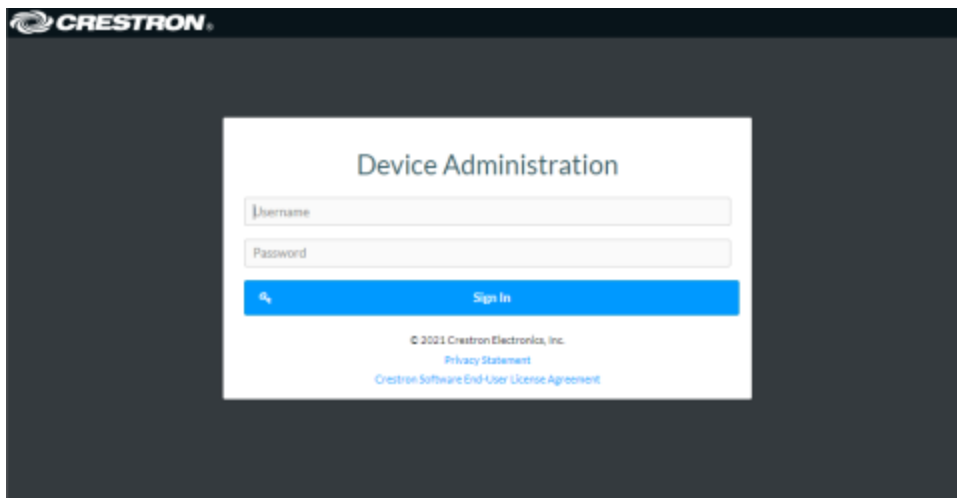
1. Enter the IP address of the DM NVX device into a web browser.

**NOTE:** To obtain the IP address, use the Device Discovery Tool utility in Crestron Toolbox™ software or an IP scanner application.

2. If accessing the device for the first time, a prompt to create an administrator account will be displayed along with a **DEVICE FIRST BOOT** message. To create the first admin account:
  - a. Enter a username in the **Username** field.
  - b. Enter a password in the **Password** field.
  - c. Re-enter the same password in the **Confirm Password** field.




- d. Select **Create User**. A new **Device Administration** page appears with an option to **Sign In** instead of **Create User**.



3. Enter the username in the **Username** field.
4. Enter the password in the **Password** field.
5. Select **Sign In**.

## Access the Web Interface with the Crestron Toolbox™ Application

To access the web interface by opening a web browser from the Crestron Toolbox™ application:

1. Open the Crestron Toolbox application.
2. Select **Device Discovery Tool** from the **Tools** menu or select the Device Discovery Tool icon  in the toolbar. Once the utility loads, the DM NVX device will be discovered on the network and listed in the device list on the left side of the screen. The device's host name, IP address, and firmware version are displayed.

**NOTE:** If there is security software running on the computer, a security alert might be displayed when the Crestron Toolbox application attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. Select the device from the discovered devices list.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

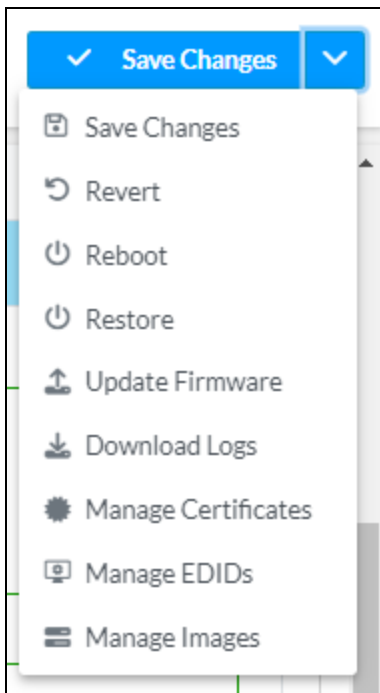
# Action

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

The **Action** drop-down menu is displayed at the top right side of the web interface and provides quick access to these common device functions:

- [Save Changes on page 433](#)
- [Revert on page 433](#)
- [Reboot on page 434](#)
- [Restore on page 434](#)
- [Update Firmware on page 435](#)
- [Download Logs on page 435](#)
- [Manage Certificates on page 435](#)
- [Manage EDIDs on page 438](#)
- [Manage Images \(Receiver Mode Only\) on page 441](#)



## Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

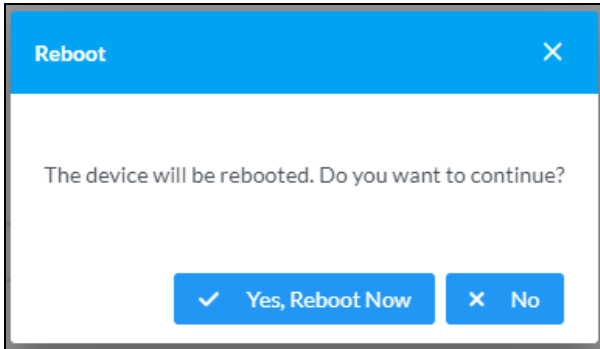
## Revert

Select **Revert** to revert the device back to the last saved configuration.

## Reboot

Certain changes to the settings may require a reboot to take effect. To reboot the device:

1. Select **Reboot** in the **Action** menu. The **Reboot** confirmation message box appears.



2. Select **Yes, Reboot Now** to reboot the device. The **Reboot** status message box appears. Wait for the device reboot to complete before attempting to reconnect to the web interface. Alternatively, select **No** to cancel the reboot operation.

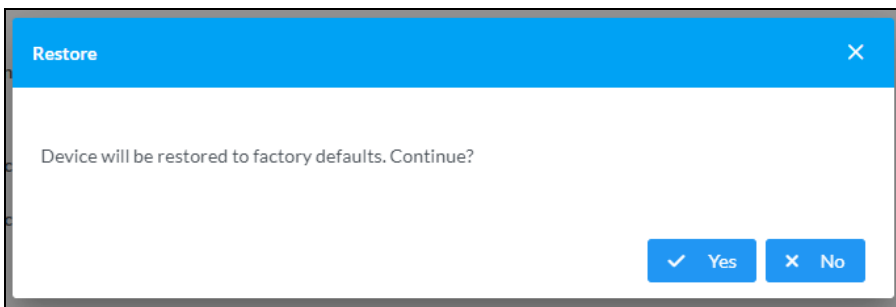
## Restore

The DM NVX device can be restored to factory default settings from the **Action** menu.

**NOTE:** The **Restore** procedure will wipe all settings from the device, including network settings. If a static IP address is set, restoring the device to factory default settings will clear this address and DHCP will be enabled instead.

To restore the device to factory defaults:

1. Select **Restore** in the **Action** menu. The **Restore** confirmation message box appears.



2. Select **Yes** to restore the device to factory default settings. Select **No** to cancel the restore operation. When **Yes** is selected, the **Restore** status message box appears. Wait for the device restore to complete before attempting to reconnect to the web interface.

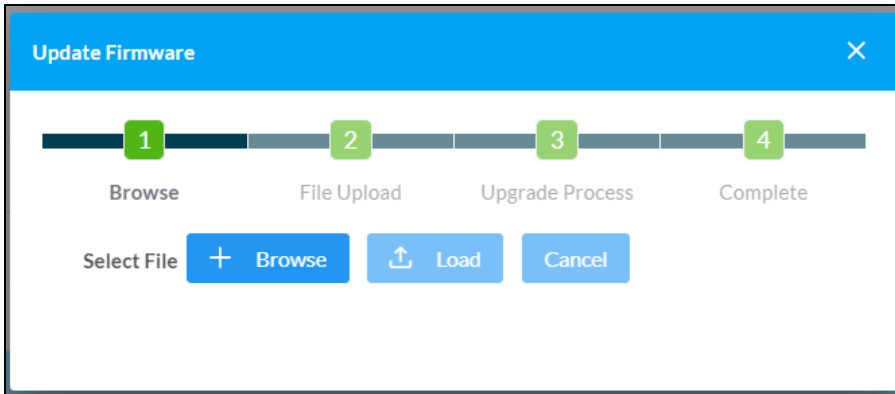
**NOTE:** Once the device is restored, it may have a new IP address. If reconnecting to the original address does not work, use the Device Discovery Tool in Crestron Toolbox software or an IP scanner application to find the device's new IP address.

If the web interface is not accessible, the device can also be restored to factory default settings via a hardware-based procedure (refer to [DM-NVX-384 Installation on page 278](#)). Card-based DM NVX devices can also be restored from the front panel menu of the DMF-CI-8.

## Update Firmware

To update the firmware of the device:

1. Select **Update Firmware** in the **Action** menu.
2. In the **Update Firmware** window that appears, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Update Firmware** window.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The firmware update is now complete, and the web interface will return to the main log-in page.

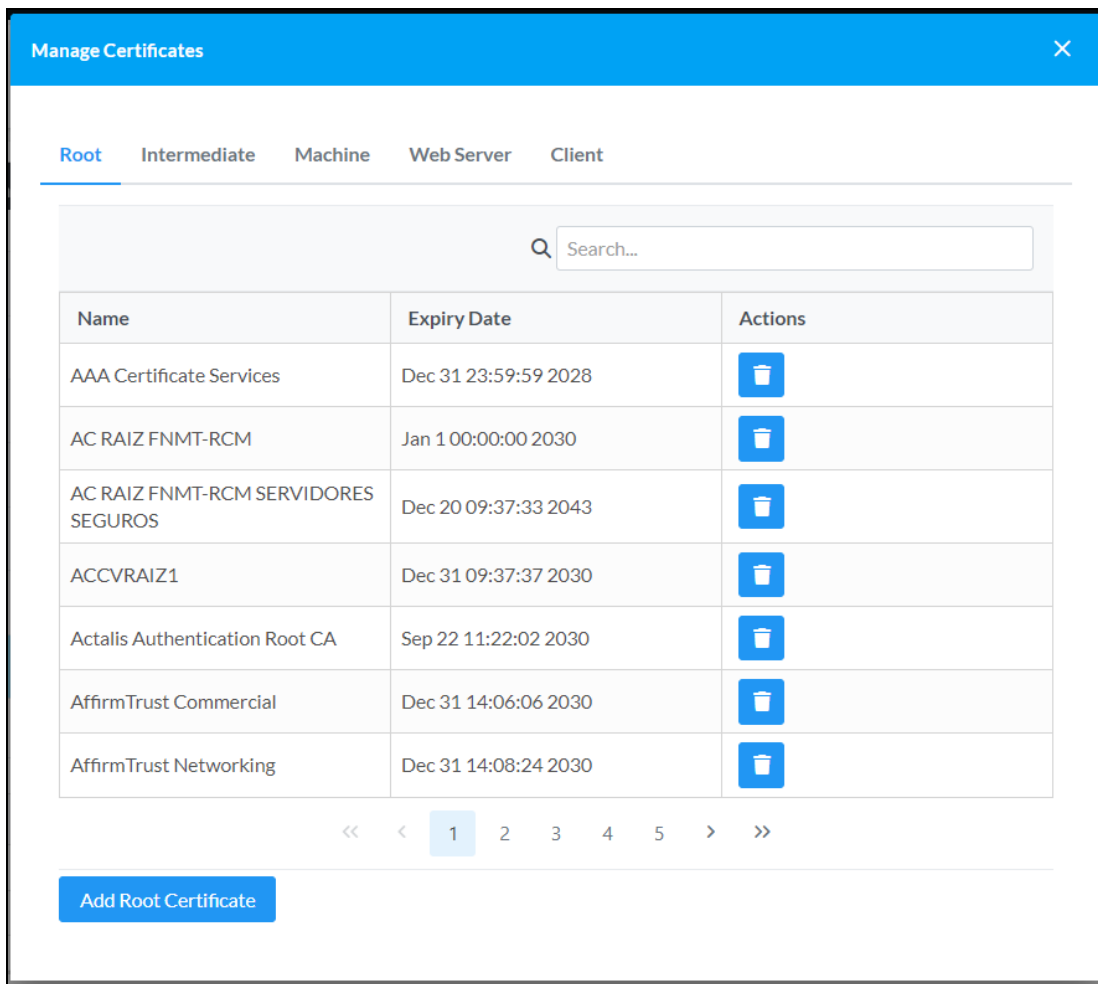
## Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

## Manage Certificates

Select **Manage Certificates** in the **Action** menu to open the **Manage Certificates** window. Use this window to add or remove certificates used in 802.1x authentication and other protected network functions.



The following certificate tabs are available in the **Manage Certificates** window:

- **Root:** The Root certificate is used by the DM NVX device to validate the network's authentication server. The device has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate:** The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine:** The Machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM NVX device. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1x, only one machine certificate can reside on the device.
- **Web Server:** The Web Server certificate is a digital file that contains information about the identity of the web server.
- **Client:** A Client certificate is a file that allows the DM NVX device to identify itself to another server on the network. There are no Client certificates loaded by default to a DM NVX device, as they can only be required by local network devices.



## Add Certificates

To add a certificate:


1. Select the corresponding certificate tab.
2. Select **Add [Type] Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

**NOTE:** If the selected certificate is a machine certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list in the **Manage Certificates** window, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

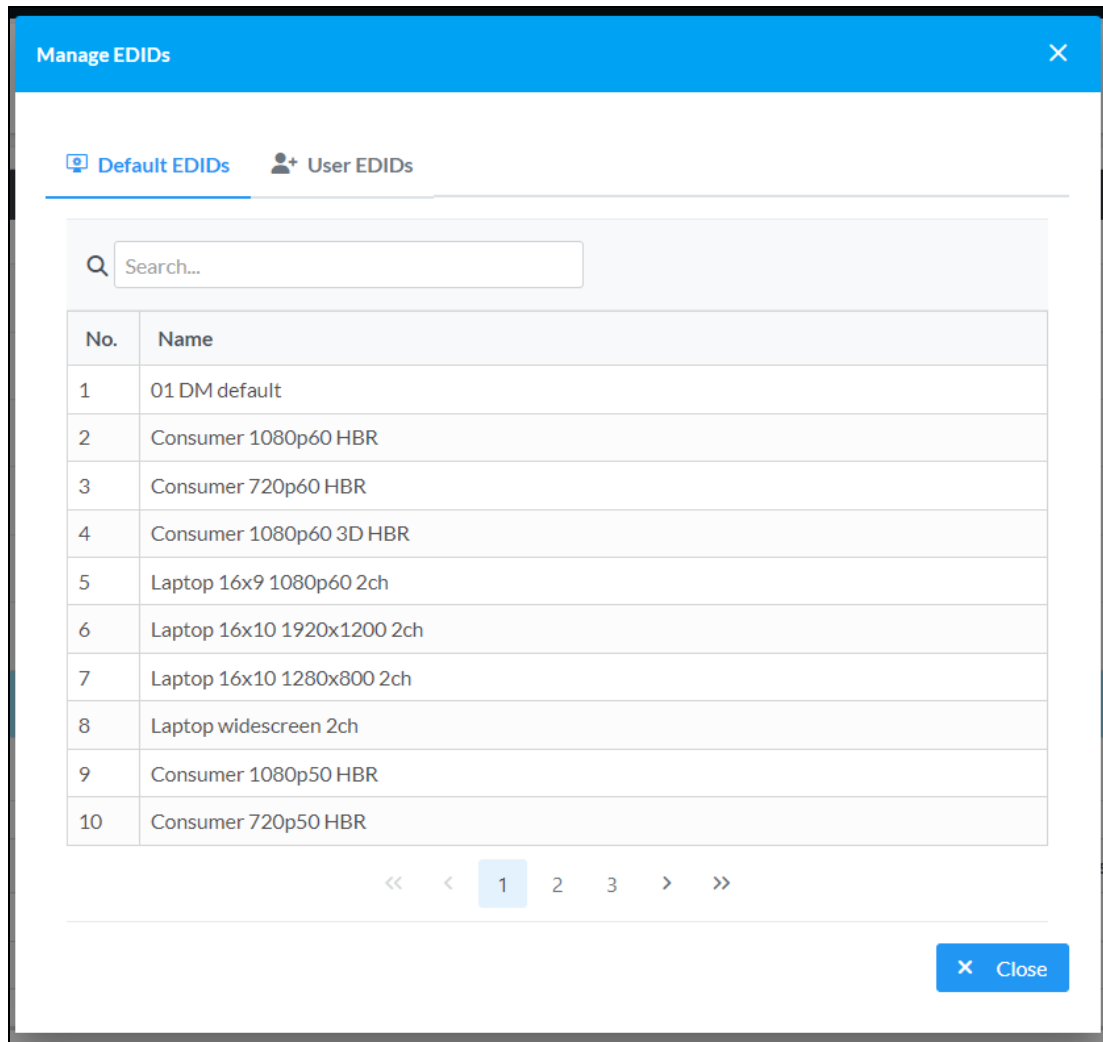
## Delete Certificates

To delete a certificate:

1. Select the corresponding certificate tab.
2. Select the trashcan icon  in the **Actions** column and the row of the certificate to be deleted.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

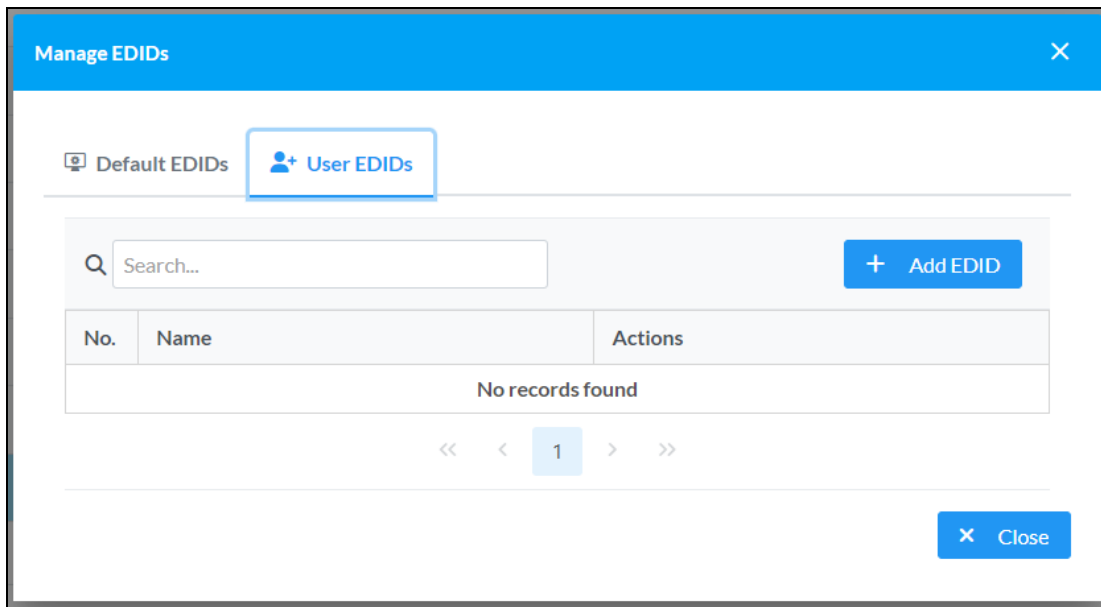
## Manage EDIDs

Select **Manage EDIDs** in the **Action** menu to open the **Manage EDIDs** window. Use this window to add, remove, or browse which EDIDs are available for the AV inputs and outputs of the DM NVX device.



The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM NVX device as part of the firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.

The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**.

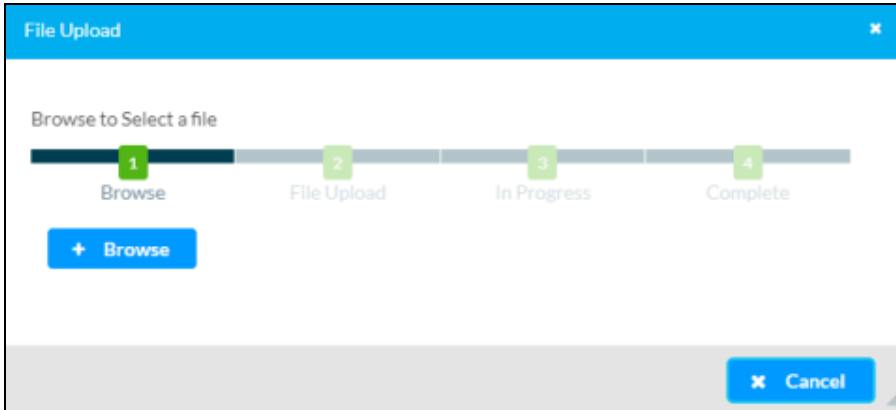


The screenshot shows a window titled "Manage EDIDs" with a close button (X) in the top right corner. Below the title bar, there are two tabs: "Default EDIDs" and "User EDIDs". The "User EDIDs" tab is selected and highlighted with a blue border. Below the tabs, there is a search bar with a magnifying glass icon and the text "Search...". To the right of the search bar is a blue button with a plus sign and the text "Add EDID". Below the search bar is a table with three columns: "No.", "Name", and "Actions". The table is currently empty, and the text "No records found" is centered in the table area. Below the table is a pagination control with the text "<< < 1 > >>". At the bottom right of the window is a blue button with a close icon (X) and the text "Close".

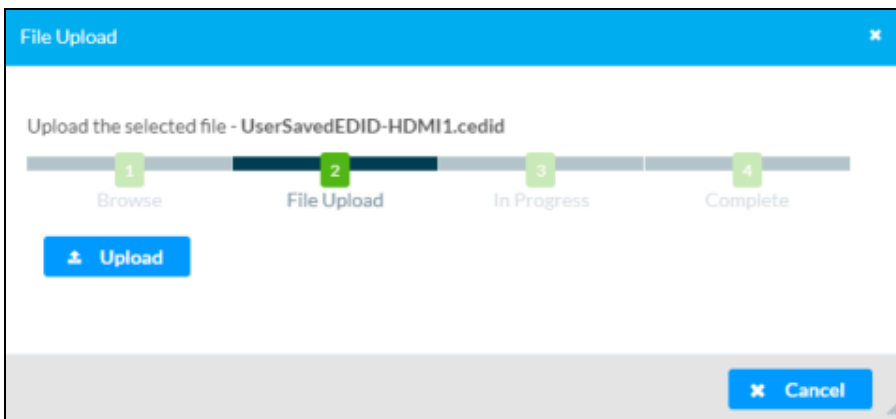
To add a **User EDID** file:

1. Select **+ Add EDID** at the top right of the table. The **File Upload** screen will appear.
2. Select **+ Browse**. Locate the desired .cedid file, then select **Upload** to upload it to the DM NVX device.

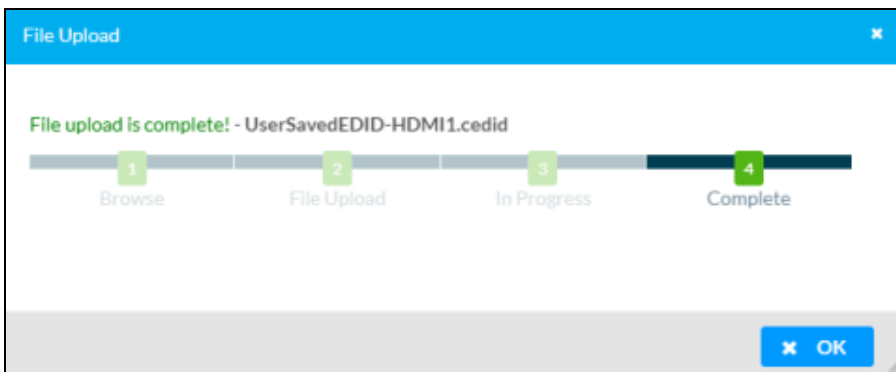
**Browse for and select a .cedid file**



**Upload the selected file**



**Wait for the upload to complete, then select OK**

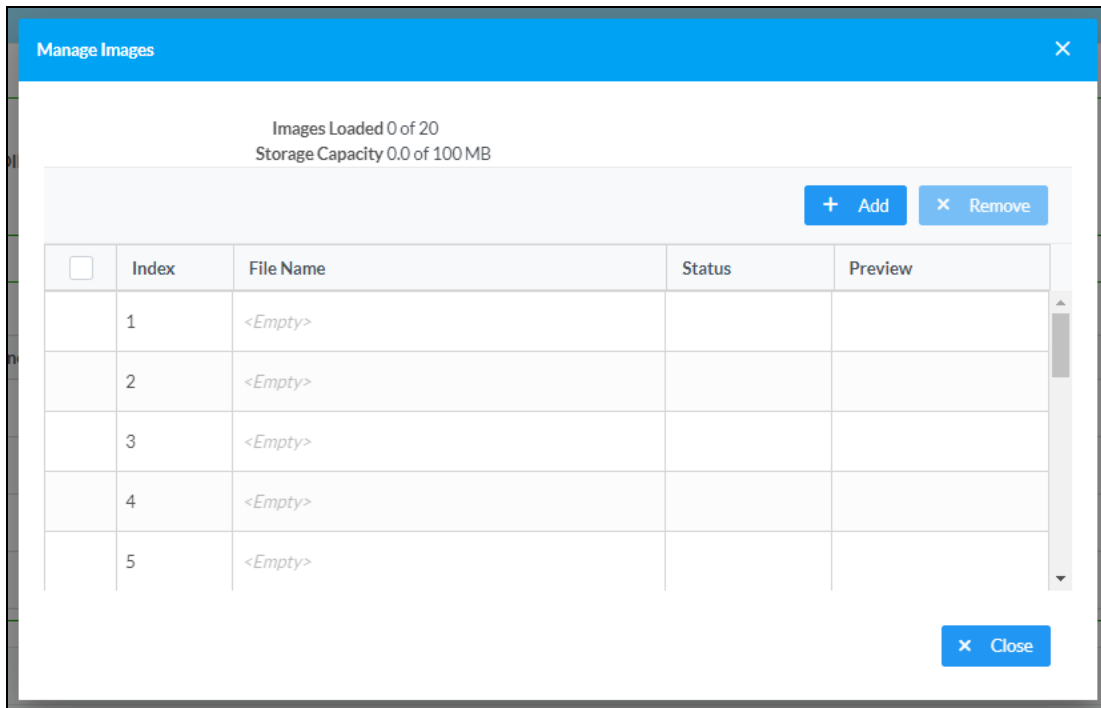


3. Select **OK** to return to the **Manage EDIDs** window. The uploaded User EDID is now displayed in the table.

To remove a **User EDID** file, select **Delete** in its table row.

## Manage Images (Receiver Mode Only)

Select **Manage Images** in the **Action** menu to open the **Manage Images** window. Use this window to add or remove images that can be displayed as backgrounds for the on-screen display feature of the DM NVX device.



To add an image:

1. Select **+ Add**. A **File Upload** window appears.
2. Select **+ Browse**. Locate the desired .jpeg, .jpg, or .png image file, then select **Upload** to upload it to the DM NVX device. The uploaded image will now appear in the **Manage Images** table with a preview and a **Ready** status message. Refer to the **Outputs** heading under [Settings on page 448](#) for information on setting a background image.

To delete an image, select its entry in the table then select **X Remove**.

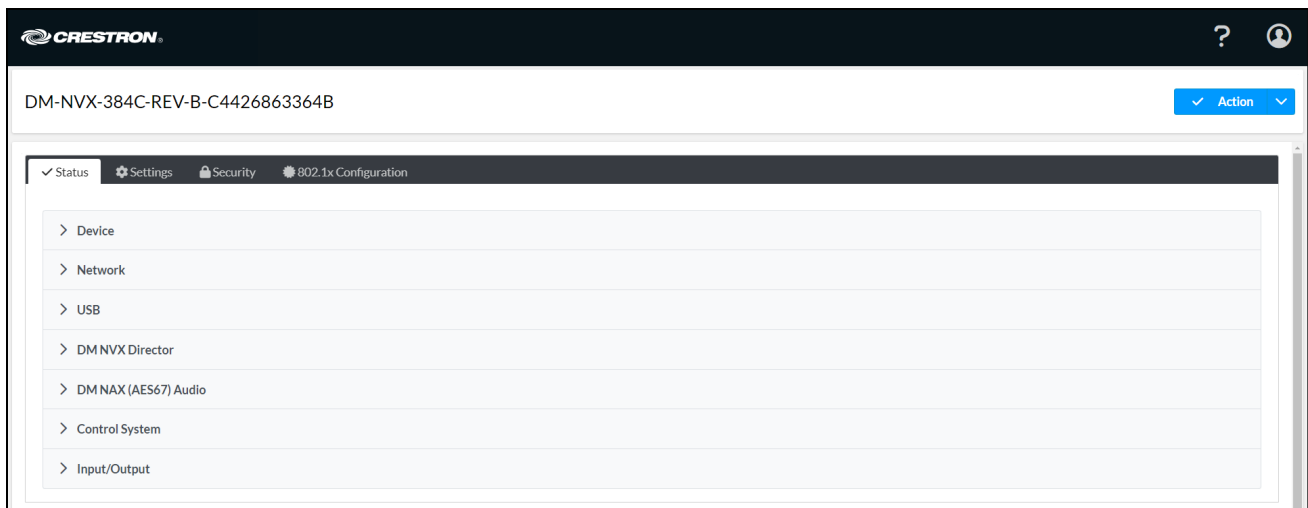
# Status

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

The **Status** page is the first page displayed when opening the interface of the DM NVX device. It displays general information about the device (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**), and the current status of the connectors on the device.

The **Status** page can be accessed at any time by selecting the **Status** tab of the interface.

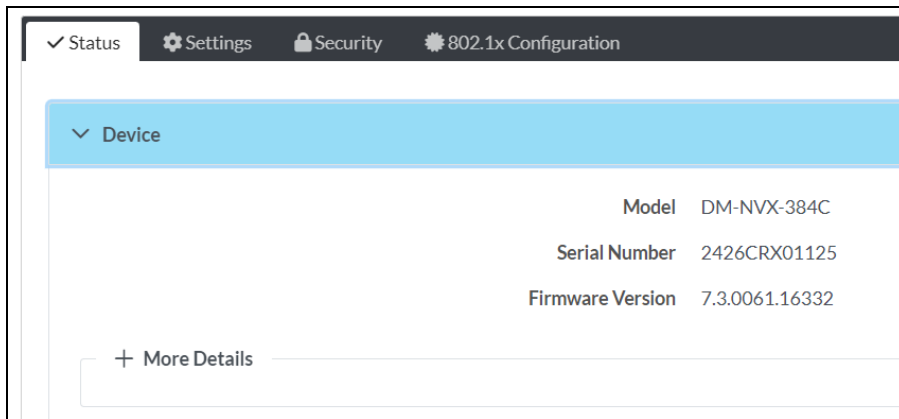


Information displayed on the **Status** page is organized into different sections:

- [Device on page 443](#)
- [Network on page 443](#)
- [USB on page 444](#)
- [DM NVX Director on page 444](#)
- [DM NAX \(AES67\) Audio on page 445](#)
- [Control System on page 446](#)
- [Input/Output on page 446](#)

## Device

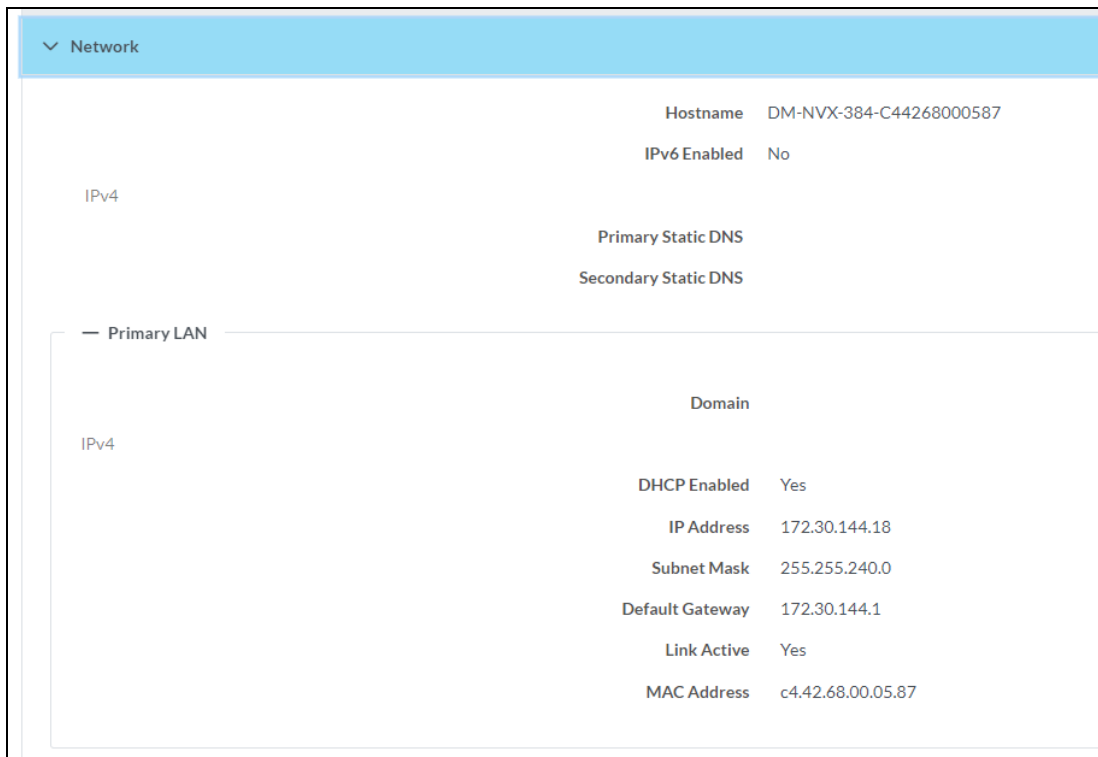
The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM NVX device.



Select **+ More Details** to review additional information about the device.

## Network

The **Network** accordion displays network-related information about the device, including the **Hostname**, **Domain Name**, and **DNS Servers**.



By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-384-C44268000587.

Select **+ Primary LAN** to display additional information regarding the Ethernet port designated as the **Primary LAN**. If **+ Primary LAN** is selected, select **- Primary LAN** to collapse the section.

**NOTE:** The **Primary LAN** port and other Ethernet port designations are assigned by the **Port Selection** feature. Refer to the **Port Selection** heading under [Settings on page 448](#) for details on configuring the **Port Selection** feature.

## USB

The **USB** accordion displays the **USB Mode**, **Transport Mode**, **Automatic USB Pairing**, **Multiple Device Support**, and **Local Device ID** of the device. Select **+ Remote Device ID** to display a table showing the **#**, **Remote Device ID**, and **Pairing Status** of any devices connected to the DM NVX device by USB.

#	Remote Device ID	Pairing Status
1	c4:42:68:63:4d:c9	Not Paired

## DM NVX Director

The **DM NVX Director** accordion displays the details of the DM NVX Director switching appliance to which the DM NVX device is claimed.

**NOTE:** If the DM NVX device has not been claimed by a DM NVX Director switching appliance, all fields in this section will be empty.

DM NVX Director Host Name  
Domain Name  
Domain Number  
Domain Slot Number

- **DM NVX Director Host Name:** Displays the host name of the claiming DM NVX Director switching appliance.
- **Domain Name:** Displays the name of the DM NVX Director domain to which the DM-NVX-38X series device belongs.
- **Domain Number:** Displays the number of the DM NVX Director domain to which the DM-NVX-38X series device belongs.
- **Domain Slot Number:** Displays the slot number within the DM NVX Director that refers to this specific DM NVX device.



## DM NAX (AES67) Audio

The **DM NAX (AES67) Audio** accordion displays information regarding the **DM NAX (AES67) Transmit** and **DM NAX (AES67) Receive** audio-over-IP (AoIP) signals. This accordion varies slightly depending if the device is in transmitter or receiver mode.

The screenshot shows a web interface for 'DM NAX (AES67) Audio'. It is divided into two sections: 'DM NAX (AES67) Transmit' and 'DM NAX (AES67) Receive'. The Transmit section shows a status of 'Stream Started', an audio mode of 'Automatic', a port of '4570', a session name of 'Stream01c4.42.68.63.4d.74', and a multicast address of '239.239.28.21'. The Receive section shows a status of 'Stream Stopped', a port of '4570', and a multicast address of '0.0.0.0'.

DM NAX (AES67) Transmit	
Status	Stream Started
DM NAX (AES67) Audio Mode	Automatic
Port	4570
Session Name	Stream01c4.42.68.63.4d.74
Multicast Address	239.239.28.21

DM NAX (AES67) Receive	
Status	Stream Stopped
Port	4570
Multicast Address	0.0.0.0

The **DM NAX (AES67) Audio Mode** field will be under the **DM NAX (AES67) Receive** heading if the device is in receiver mode or under the **DM NAX (AES67) Transmit** heading if the device is in transmitter mode. This field displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).

The details displayed for **DM NAX (AES67) Transmit** are:

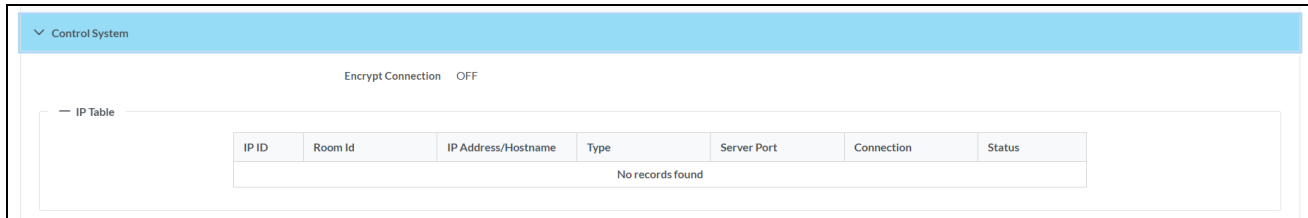
- **Status:** Displays a status message for the transmitting AoIP stream, such as **Stream Stopped**, **Stream Starting**, or **Stream Started**.
- **DM NAX (AES67) Audio Mode:** Displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).
- **Port:** Displays the port of the AoIP transmit stream.
- **Session Name:** Displays the session name of the AoIP transmit stream.
- **Multicast Address:** Displays the multicast address of the AoIP transmit stream.

The details displayed for **DM NAX (AES67) Receive** are:

- **Status:** Displays a status message for the AoIP stream receiver, such as **Connecting**, **Stream Stopped**, or **Stream Started**.
- **Port:** Displays the port of the received AoIP stream.
- **Multicast Address:** Displays the multicast address of the received AoIP stream.

## Control System

The **Control System** accordion displays information regarding the connection between the DM NVX device and a control system.



The displayed fields are:

- **Encrypt Connection:** Displays **ON** if the connection is encrypted or **OFF** if it is not.
- **IP ID:** Displays the IP ID of the DM NVX device in its IP table entry of the control system's IP table.
- **Room ID:** Displays the room ID of the DM NVX device in its IP table entry of the control system's IP table.
- **IP Address/Hostname:** Displays the IP address and host name of the control system.
- **Type:** Always displays **Peer** (this is the only relationship the DM NVX device can have to a control system).
- **Server Port:** Displays the port for the connection between the DM NVX device and the control system.
- **Connection:** Always displays **Gway** (this is the only connection type supported between a DM NVX device and a control system).
- **Status:** Displays either **ONLINE** or **OFFLINE** depending on if the DM NVX device is able to communicate with the control system.

## Input/Output

The **Input/Output** accordion displays status information regarding the AV input and output connectors.



The displayed fields for **Inputs** are:

- **Name:** Displays the name of the input.
- **Sync Detected:** Displays whether sync is detected at the input (**Yes**) or not (**No**).

- **Audio Format:** Displays the audio format of the input signal.
- **Audio Channels:** Displays the number of audio channels in the input signal.

The displayed fields for **Outputs** are:

- **Name:** Displays the name of the output.
- **Sink Connected:** Displays whether a sink (such as a display or projector) is connected to the output (**Yes**) or not (**No**).
- **Resolution:** Displays the current resolution of the video output signal.
- **Sink HDCP Capability:** Displays the HDCP level supported by the connected display or projector.
- **Disabled by HDCP:** Displays whether the output is disabled by HDCP (**Yes**) or not (**No**).

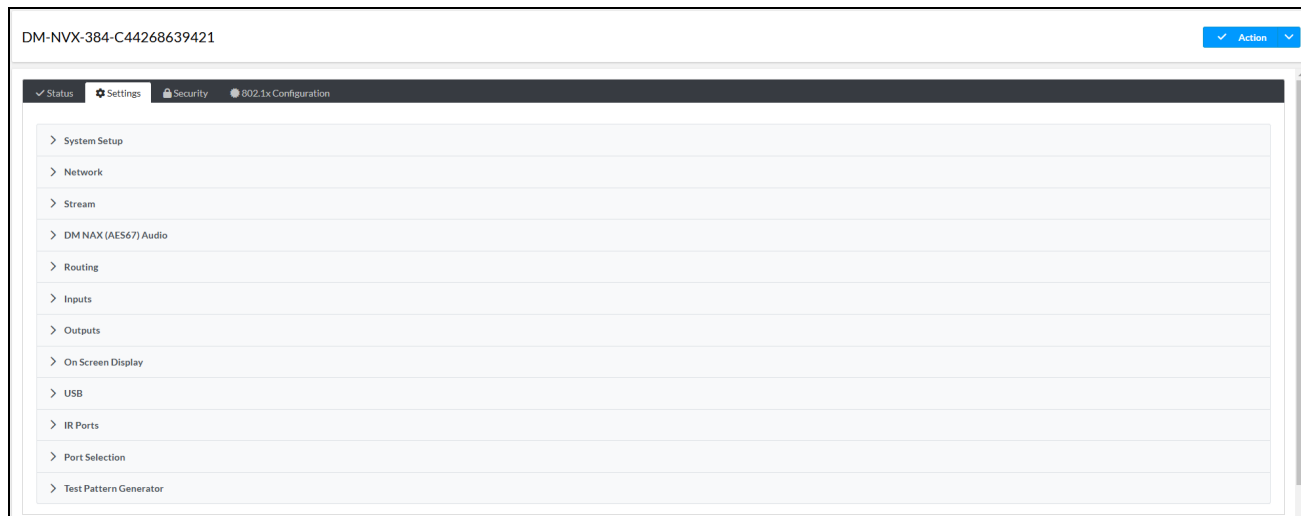
# Settings

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

The **Settings** page enables configuration of the DM NVX device's settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the interface.

## Settings Page (Transmitter Mode Shown)



**NOTE:** Some settings are available only in encoder (transmitter) or decoder (receiver) mode. Mode requirements are noted in headings below where appropriate.

Settings available on the **Settings** page are organized into different sections:

- [System Setup on page 449](#)
- [Network on page 455](#)
- [Stream on page 456](#)
- [DM NAX \(AES67\) Audio on page 464](#)
- [Routing on page 466](#)
- [Subscriptions \(Receiver Mode Only\) on page 470](#)
- [Inputs on page 472](#)
- [Outputs on page 477](#)
- [On Screen Display on page 489](#)
- [USB on page 490](#)
- [IR Ports on page 492](#)

- [Port Selection on page 493](#)
- [Test Pattern Generator on page 494](#)

## System Setup

The **System Setup** accordion contains settings for configuration of the following system functions.

The screenshot shows the 'System Setup' accordion with the following settings:

- Network Interface:** IGMP Support is set to V2 (selected with a blue radio button) and V3 is unselected (white radio button).
- Device Mode Lock:** Control Lock is turned off (grey toggle switch).
- Cloud Settings:** Cloud Configuration Service Connection is turned on (blue toggle switch).
- Auto Update:** Auto Update is turned on (blue toggle switch).

### Network Interface

The **Network Interface** section provides a choice between IGMPv2 and IGMPv3 operation. Choose the settings that match the capabilities of the network hardware.

#### NOTES:

- This setting must match on all DM NVX devices in a system to ensure compatibility.
- DM NVX devices are set to IGMPv2 operation by default.
- Crestron recommends leaving DM NVX systems set to IGMPv2 operation unless the network specifically requires IGMPv3.

This close-up screenshot shows the 'Network Interface' section with the following setting:

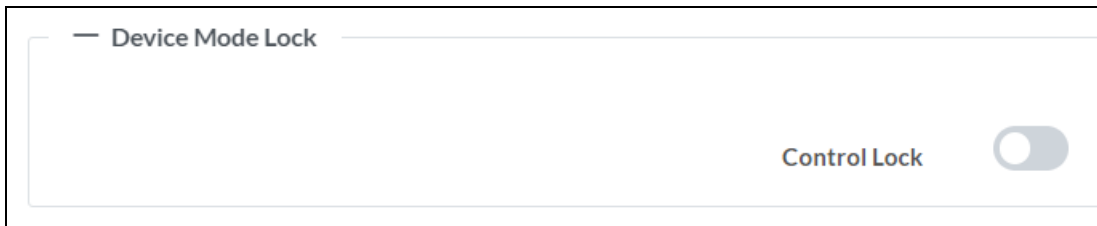
- IGMP Support:** V2 is selected (blue radio button) and V3 is unselected (white radio button).

To change the **Network Interface** mode:

1. Select **V2** to set the DM NVX device to IGMPv2 operation, or select **V3** to set the device to IGMPv3 operation.
2. Select **Save Changes**. A prompt will appear to reboot the device.
3. Select **Yes, Reboot Now** to reboot the device into the new **Network Interface** mode.

## Device Mode Lock

The **Device Mode Lock** section provides a toggle for the **Control Lock** feature.

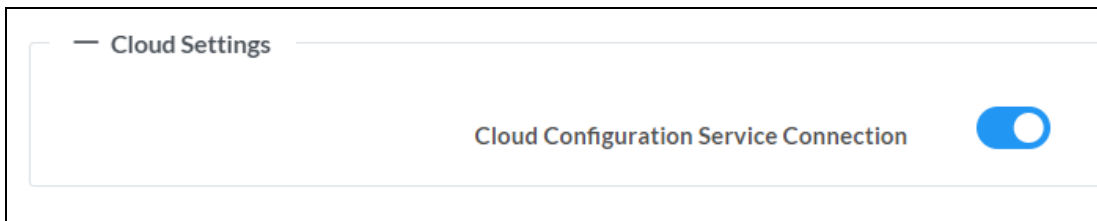


Set the **Control Lock** toggle to the right to lock out the push buttons built in to the DM NVX device.

Set the **Control Lock** toggle to the left to disable the lock, allowing the push buttons to control source routing and device modes.

## Cloud Settings

The Cloud Settings section provides a toggle to enable or disable communication with the Crestron XiO Cloud® platform.



Set the **Cloud Configuration Service Connection** toggle to the right to allow the DM NVX device to communicate with the XiO Cloud platform. Set the toggle to the left to prevent the device from communicating with the XiO Cloud platform.

## RS-232 Port Settings

**NOTE:** This section is not available on card-based models.

Configure the settings for the built-in RS-232 port of the device in the **RS-232 Port Settings** section.

The screenshot shows the 'RS-232 Port Settings' configuration page. It contains several settings, each with a label and a corresponding input field or dropdown menu:

- Baud Rate:** A dropdown menu set to '9600'.
- Hardware Flow Control:** A dropdown menu set to 'None'.
- Data Bits:** A dropdown menu set to '8'.
- Parity:** A dropdown menu set to 'None'.
- Software Flow Control:** A dropdown menu set to 'None'.
- Stop Bits:** A dropdown menu set to '1'.

- **Baud Rate:** Select the baud rate from the drop-down.
- **Hardware Flow Control:** Select the hardware flow control from the drop-down.
- **Data Bits:** Select the number of data bits from the drop-down.
- **Parity:** Select the parity from the drop-down.
- **Software Flow Control:** Select the software flow control from the drop-down.
- **Stop Bits:** Select the number of stop bits from the drop-down.

## Auto Update

The DM NVX device can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.

The screenshot shows the 'Auto Update' configuration page. It includes the following settings:

- Auto Update:** A toggle switch that is turned on (blue).
- Custom URL:** A toggle switch that is turned off (grey).
- Custom URL Path:** A text input field containing 'ftp://ftp:ftp@192.168.50.10/NVX/manife'.
- Schedule:** A section containing:
  - Day of Week:** A dropdown menu set to 'Daily'.
  - Time of Day:** A text input field set to '02:34'.
  - Poll Interval:** A text input field set to '0' with the label 'Minutes' to its right.
- Update Now:** A blue button located at the bottom of the configuration area.

To configure the **Auto Update** feature settings:

1. Set the **Auto Update** toggle to the right to enable the **Auto Update** feature.
2. Define the URL to download the updates by doing either of the following:
  - a. Use the default URL to download the updates from the Crestron server.
  - b. Use a custom URL. Set the **Custom URL** toggle to the right to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
  - a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
  - b. Set the **Poll Interval** by entering a value from 60 to 65535 minutes. A value of 0 disables the **Poll Interval**.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

## Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM NVX device.

— Date/Time

Synchronization

Time Synchronization

NTP Time Servers

<input type="checkbox"/>	Address	Port	Authentication Method	Authentication Key	Key ID
<input type="checkbox"/>	pool.ntp.org	123	None	*****	0

Configuration

Time Zone: (UTC-05:00) Eastern Time (US & Can) ▼

Date: 09/30/2024

Time: 07:58

## Synchronization

1. Set the **Time Synchronization** toggle to the right to enable or left to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

## Configuration

1. Open the **Time Zone** drop-down menu to select the applicable time zone.
2. In the **Date** field, enter the current date.



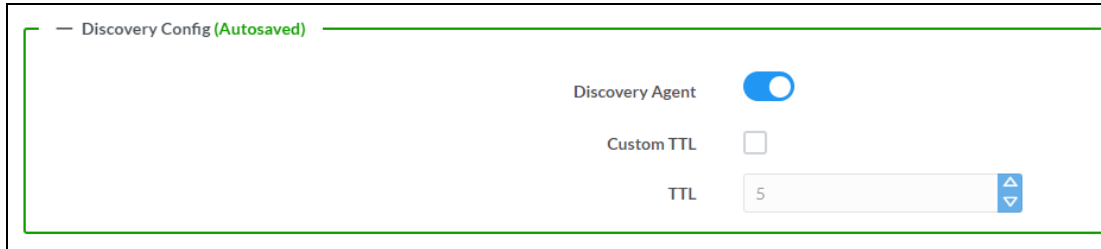
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** drop-down menu to revert to the previous settings without saving.

## Discovery Config

The **Discovery Config** section provides settings to customize how the DM NVX device and its streams can be discovered on the LAN.



Discovery Config (Autosaved)

Discovery Agent

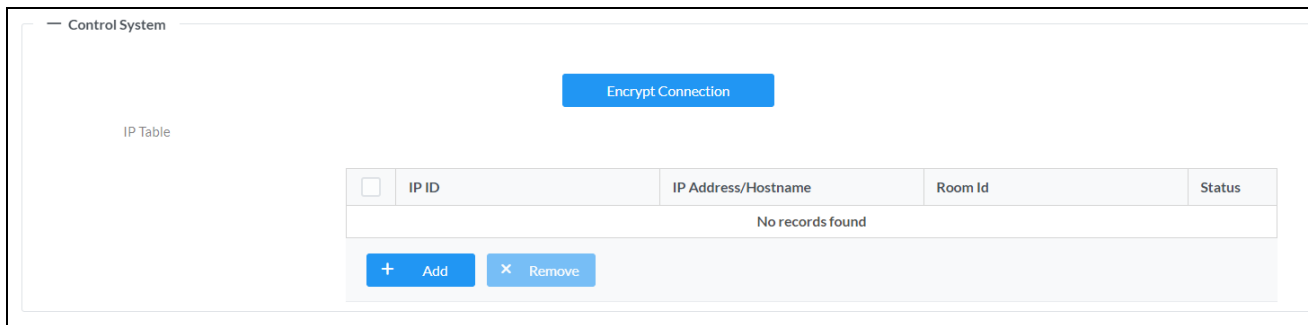
Custom TTL

TTL 5

Set the **Discovery Agent** toggle to the right to allow streams from the device to be discoverable on the network or to the left to prevent network discovery. When **Discovery Agent** is enabled, the streams from the DM NVX device are displayed in the **Available Streams** list of other receivers.

Select the **Custom TTL** option and enter a value in the **TTL** field if a custom Time-to-live (TTL) value is required on the network. The default **TTL** value is 5.

## Control System



Control System

Encrypt Connection

IP Table

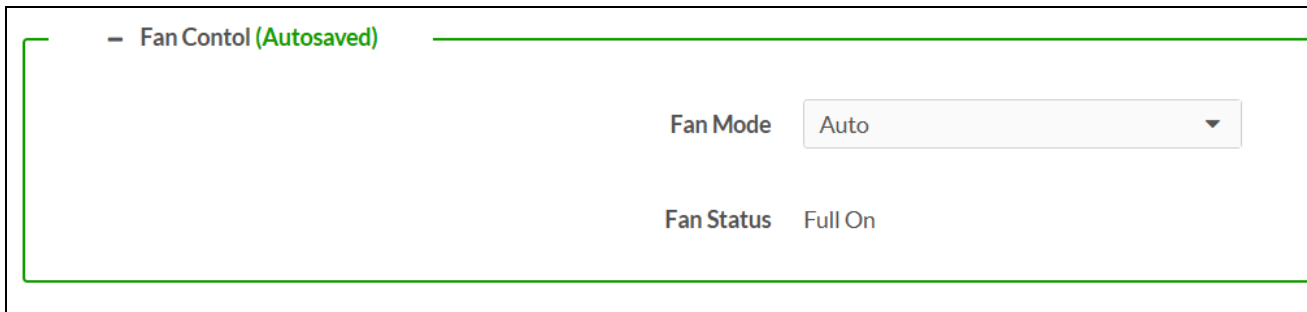
<input type="checkbox"/>	IP ID	IP Address/Hostname	Room Id	Status
No records found				

+ Add x Remove

1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
  - a. Enter a username in the **Control System Username** field.
  - b. Enter a password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
  - a. Enter the Room ID in the **Room ID** field.
  - b. Enter the IP ID of the DM NVX device in the **IP ID** field.
  - c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box appears, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

## Fan Control (Receiver Mode Only)

**NOTE:** This section is not available on card-based models.



— Fan Control (Autosaved)

Fan Mode

Fan Status Full On

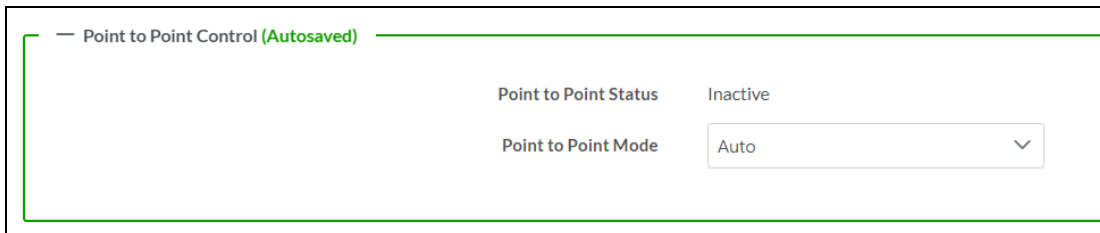
Select an option from the **Fan Mode** drop-down:

- **Auto:** The fan automatically turns on when either of these conditions are met:
  - A video stream is present.
  - The internal temperature of the device exceeds the normal operating range.
- **Always On:** The fan runs continuously regardless of video stream status and internal temperature.

**Fan Status** is a read-only field that will either read **Full On** to indicate that the fan is running or **Off** to indicate that the fan is not running.

## Point to Point Control

The **Point to Point Control** section allows enabling or disabling point-to-point streaming of AV-over-IP between this device and another directly-connected DM NVX device without the need for a control system.



— Point to Point Control (Autosaved)

Point to Point Status Inactive

Point to Point Mode

**Point to Point Status** is a read-only field that indicates whether point-to-point mode is **Active** or **Inactive**.

Select an option from the **Point to Point Mode** drop-down:

- **Auto:** (Default setting) Each 1000BASE-T port of the device detects whether it is connected directly to another DM NVX device or to a 1000BASE-T switch. If a direct connection between a DM NVX encoder and decoder is detected, point-to-point streaming is automatically initiated.
- **Disable:** Disables point-to-point streaming.

## Network

The **Network** accordion contains network-related settings for the DM NVX device, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

The screenshot shows the Network configuration interface. At the top, there is a 'Network' header with a dropdown arrow. Below it, the 'IPv4' section is visible, containing the following settings:

- Hostname: DM-NVX-384C-REV-B-C4426863364B
- IPv6 Enabled: Disabled (toggle switch)
- Primary Static DNS: 10.253.31.12(DHCP)
- Secondary Static DNS: (empty field)

Below the 'IPv4' section is the 'Primary LAN' section, which includes the following settings:

- Domain: 6vcrestronqelab.com
- DHCP Enabled: Enabled (toggle switch)
- IP Address: 10.253.57.133
- Subnet Mask: 255.255.255.0
- Default Gateway: 10.253.57.1

**NOTE:** By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-384-C44268000587.

### Primary LAN

The **Primary LAN** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of the Ethernet adapter assigned as the **Primary LAN** via the **Port Selection** feature.

**NOTE:** Other LAN subheadings appear when the built-in Ethernet ports are given traffic designations via the **Port Selection** feature. Refer to [Port Selection on page 493](#) for more information on designating specific traffic to specific Ethernet ports. The same settings are available for the additional LAN subheadings that are available for **Primary LAN**.

Set the **DHCP** toggle to the right to enable **DHCP** or left to disable **DHCP**. This determines whether the IP address of the **Primary LAN** port is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled:** When DHCP is enabled (default setting), the IP address of the Primary LAN port is automatically assigned by a DHCP server on the local area network (LAN).

- **Disabled:** When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS:** Enter a primary DNS IP address.
  - **Secondary Static DNS:** Enter a secondary DNS IP address.
  - **IP Address:** Enter a unique IP address for the Primary LAN port.
  - **Subnet Mask:** Enter the subnet mask that is set on the network connected to the Primary LAN port.
  - **Default Gateway:** Enter the IP address that is to be used as the Primary LAN network's gateway.

To save any new network entries, select **Save Changes**.

## Stream

The settings available under the **Stream** accordion vary depending on whether the device is operating as an encoder (transmitter) or decoder (receiver).

### Stream Settings (Transmitter Mode)

#### Sample Stream Settings (Transmitter Mode)

The screenshot displays the 'Stream' settings interface. At the top, there is a blue header with a dropdown arrow and the text 'Stream'. Below this, the settings are organized into a list of fields:

- Mode:** A dropdown menu set to 'Transmitter'.
- Stream Type:** A dropdown menu set to 'Pixel Perfect Processing (Default)'.
- Multicast Address:** A text input field containing '239.239.28.20'.
- Device Name:** A text input field containing 'DM-NVX-384C-REV-B-C4426863'.
- Stream Location:** A text input field containing 'rtsp://10.253.57.133:554/live.sdp'.
- Status:** A text input field containing 'Stream started'.
- Resolution:** A text input field containing '3840x2160@60'.
- Preview:** A video window showing a dark, blue-tinted profile of a person's face.

Configure the basic stream settings:

- **Mode:** Select either **Receiver** or **Transmitter** from the drop-down. Selecting a new mode requires a reboot of the device. Select **Save Changes** to apply the new mode and reboot the device.
- **Stream Type:** Select either **Pixel Perfect Processing** (if transmitting to other DM NVX 4K60 4:4:4 capable endpoints) or **DM-NVX-D10/D20** (if transmitting to a decoder in the D10/D20/D200 family of DM NVX decoders).

- **Multicast Address:** Sets the multicast address of the outgoing stream.
  - The secondary audio stream from the DM NVX device will consume the next multicast address above the value entered here. For example, a **Multicast Address** of 239.10.0.1 will result in a secondary audio stream address of 239.10.0.2.

**CAUTION:** Ensure the value entered for **Multicast Address** is unique on the network. Duplicate multicast addresses will result in traffic collision and downstream receivers will fail to receive content.

**NOTE:** DM NVX devices can have a multicast transmit address anywhere in the range from 239.0.0.1 to 239.127.255.255. DM NAX audio-over-IP devices use a multicast range from 239.8.0.1 to 239.127.255.255.

- **Device Name:** Displays the name of the DM NVX device. A custom name can also be entered in this text box. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the stream.
- **Status:** Displays the status of the network stream (for example, **Stream starting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the outgoing stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services

Services (Autosaved)

Preview Settings

Preview Output

Base File Name

Generated Preview Images	Type	File Name
	135px	preview_135px.jpeg
	270px	preview_270px.jpeg
	540px	preview_540px.jpeg

Local Preview Path

The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

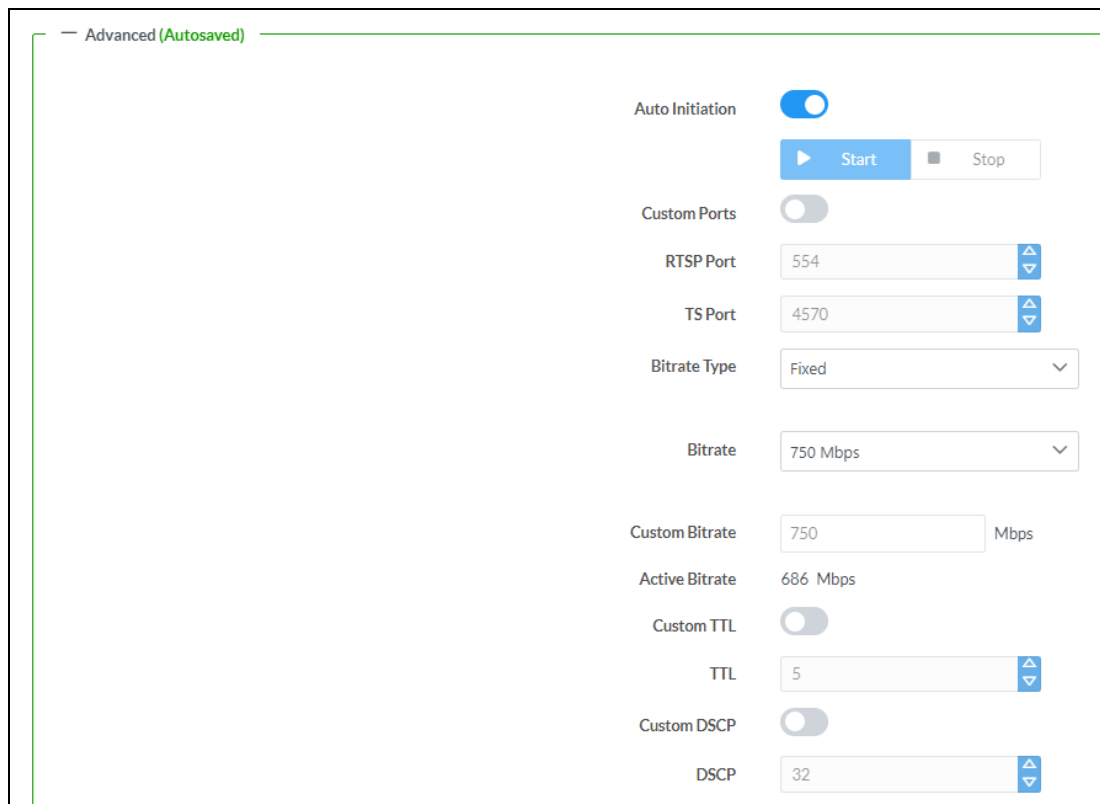
**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

### Advanced

The **Advanced** section provides further configuration of the transmitting AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to configure a custom RTSP or TS port for the transmitting DM NVX stream. Set the toggle to the left to use the default values for both ports (the default RTSP port value is 554 and the default TS port value is 4570).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.
- Enter a custom TS port in the **TS Port** field.

**NOTE:** Valid values for both custom port fields range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **Bitrate Type:** Select either Fixed or Variable from the drop-down.
  - **Fixed:** The transmitting DM NVX stream always meets the bitrate specified by the **Bitrate** drop-down. The default and recommended bitrate value is 750 Mbps.
  - **Variable:** The bitrate of the transmitting DM NVX stream is dynamic based on the resolution of the stream content. Selecting **Variable** will disable the **Bitrate** drop-down and **Custom Bitrate** text entry field.
  - **Custom:** The transmitting DM NVX stream always meets the bitrate specified by the **Custom Bitrate** text entry field. The default and recommended bitrate value is 750 Mbps.
- **Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Fixed**.
- **Custom Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Custom**.
- **Active Bitrate:** Displays the current bitrate of the transmitting DM NVX stream.
- **Custom TTL:** Multicast Time-to-live (TTL) provides the ability to limit or extend the hop limit of a DM NVX stream that traverses routers. In IPv4 multicasting, routers have a TTL threshold assigned to each interface. Only multicast packets with a TTL greater than the threshold of the interface are forwarded.

Select the **Custom TTL** checkbox to enter a custom TTL value for the DM NVX stream in the **TTL** field.

- **TTL:** Enter a value from 1 to 255. The default TTL value is 5.

- **Custom DSCP:** To implement Quality of Service (QoS), IP networks use Differentiated Services Code Point (DSCP) values. Within an IP packet header, the DSCP is a value from 0 to 63 that maps to a certain traffic classification. Based on IT department policies and network switch configurations, DSCP values are used to determine the treatment of specific packets in router queues, the routes of traffic flows, and per-hop behavior. By default, DSCP for DM NVX AV-over-IP is set to 32.

Select the **Custom DSCP** checkbox to enter a custom DSCP value for the DM NVX stream's AV-over-IP packets in the **DSCP** field

**NOTE:** Only change the DSCP value if required by IT department policies or if necessitated by poor network performance. Refer to [AV-over-IP Network Design on page 628](#) for network performance troubleshooting tips.

The screenshot shows a configuration interface with two main sections: 'Statistics' and 'Audio/Video'. In the 'Statistics' section, there is a 'Statistics' toggle switch that is currently turned off. Below it, 'Packets Transmitted' and 'Packets Dropped' are both displayed as 0. A 'Reset Statistics' button is located to the right of these values. In the 'Audio/Video' section, 'Audio Channels' is set to 2, 'Audio Format' is set to LPCM, and 'Aspect Ratio' is set to 16:9.

The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the transmitting DM NVX stream:
  - **Packets Transmitted** will display the total number of packets transmitting by the DM NVX device as part of the outgoing DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - Select **Reset Statistics** to set both **Packets Transmitted** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the transmitting DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the transmitting DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the transmitting DM NVX stream.



## Stream Settings (Receiver Mode)

### Sample Stream Settings (Receiver Mode)

Stream

Mode: Receiver

Device Name: DM-NVX-384-C44268000587

Stream Location: rtsp://172.30.148.214:554/live.sdp

Multicast Address:

Status: Connecting

Resolution:

Preview: NO VIDEO

Configure the basic stream settings:

- **Mode:** Select either **Receiver** or **Transmitter** from the drop-down. Selecting a new mode requires a reboot of the device. Select **Save Changes** to apply the new mode and reboot the device.
- **Device Name:** Displays the name of the upstream DM NVX device. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the incoming stream. A stream location can also be manually entered by typing in this text field.
- **Multicast Address:** Displays the multicast address of the incoming stream.
- **Status:** Displays the status of the network stream (for example, **Connecting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the incoming stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services

Services (Autosaved)

Preview Settings

Preview Output:

Base File Name: preview

Generated Preview Images	Type	File Name
	135px	preview_135px.jpeg
	270px	preview_270px.jpeg
	540px	preview_540px.jpeg

Local Preview Path: /preview

The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

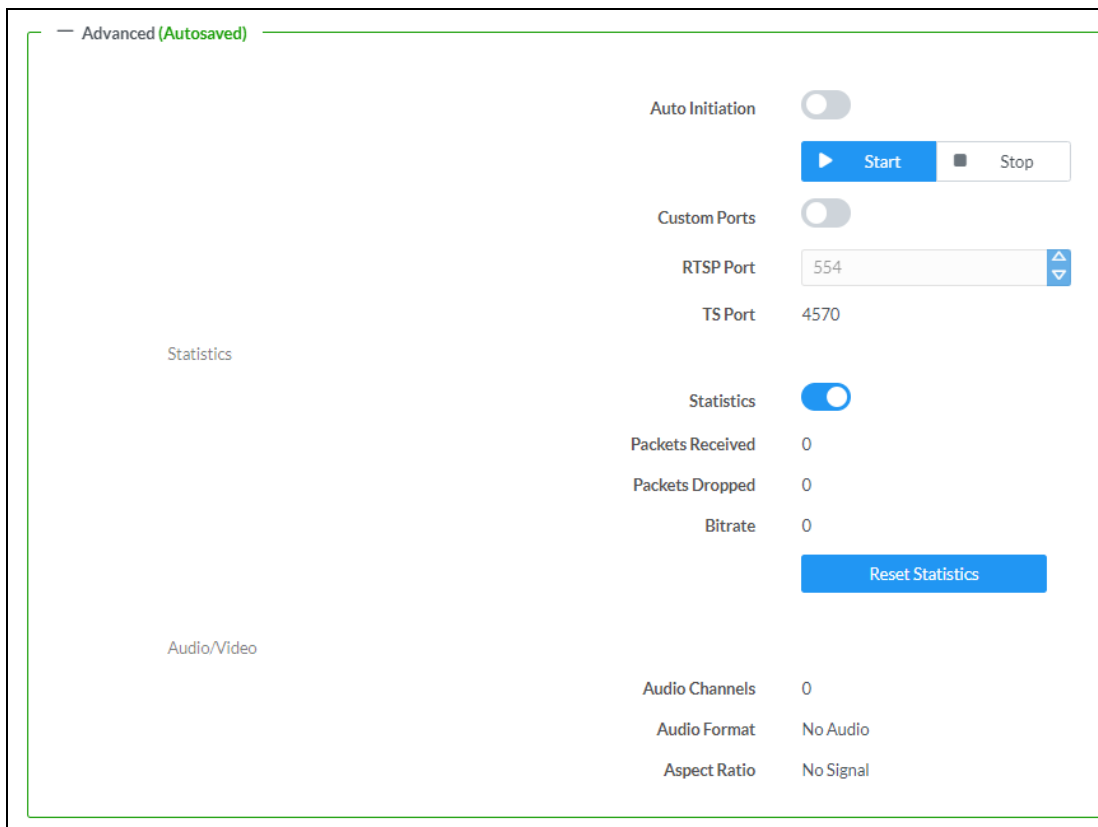
**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

### Advanced

The **Advanced** section provides further configuration of the incoming AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to set a custom RTSP port to connect to an incoming DM NVX stream. Set the toggle to the left to use the default port values (the default RTSP port value is 554).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.

**NOTE:** Valid values for the custom port field range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **TS Port:** Displays the default TS port value (4570).

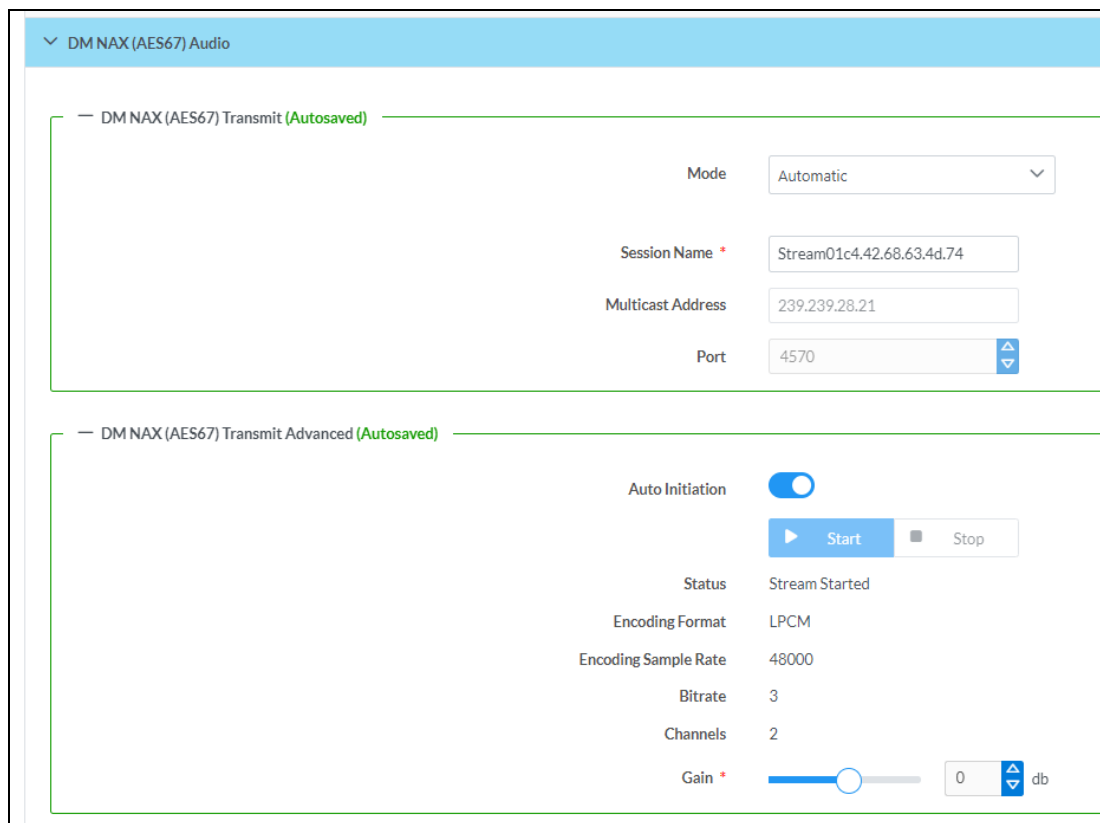
The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the incoming DM NVX stream:
  - **Packets Received** will display the total number of packets received by the DM NVX device as part of the incoming DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - **Bitrate** will display the current bitrate of the incoming DM NVX stream.
  - Select **Reset Statistics** to set both **Packets Received** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the incoming DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the incoming DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the incoming DM NVX stream.

## DM NAX (AES67) Audio

DM NVX devices natively support DM NAX® audio-over-IP technology, which is built off the standards of AES67. AES67 support allows a selected audio source to be transmitted as a 2-channel AES67 stream while another 2-channel AES67 audio stream is received from another AES67-capable device or Crestron DM NAX device.

Use the **DM NAX (AES67) Audio** accordion to configure the DM NAX audio-over-IP transmit and receive streams of the DM NVX device.



DM NAX (AES67) Audio

DM NAX (AES67) Transmit (Autosaved)

Mode: Automatic

Session Name: Stream01c4.42.68.63.4d.74

Multicast Address: 239.239.28.21

Port: 4570

DM NAX (AES67) Transmit Advanced (Autosaved)

Auto Initiation:

Start Stop

Status: Stream Started

Encoding Format: LPCM

Encoding Sample Rate: 48000

Bitrate: 3

Channels: 2

Gain: 0 db

To configure the **DM NAX (AES67) Transmit** stream:

1. Select a stream addressing mode from the **Mode** drop-down:
  - **Automatic** adds 1 to the outgoing video stream multicast address to generate the DM NAX transmit multicast address. For example, if the video multicast address is 239.8.0.1, the DM NAX (AES67) multicast address is automatically set to 239.8.0.2.
  - **Manual** requires the multicast address of the transmitting DM NAX stream to be set manually. Selecting **Manual** enables the **Multicast Address** and **Port** text entry fields.
  - **Disabled** turns off DM NAX transmission from the DM NVX device.
2. Set a custom session name in the **Session Name** text entry field. This is similar to setting a hostname for an IP address on the LAN. The session name will appear in addition to the multicast address when the DM NAX audio-over-IP stream is discovered on the network.
3. If the **Mode** is set to **Manual**, enter custom values in the **Multicast Address** and **Port** text entry fields.
4. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the DM NAX transmit stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.
5. Adjust the **Gain** slider to configure the audio level compensation on the transmitting DM NAX stream from -10 to +10 dB.

The screenshot shows two configuration panels for the DM NAX (AES67) Receive stream. The top panel, titled "DM NAX (AES67) Receive (Autosaved)", contains two input fields: "Multicast Address" with the value "0.0.0.0" and "Port" with the value "4570". The bottom panel, titled "DM NAX (AES67) Receive Advanced (Autosaved)", features an "Auto Initiation" toggle switch that is turned on. Below the toggle are "Start" and "Stop" buttons. The status is "Stream Stopped". Other parameters listed are: "Encoding Format" (LPCM), "Encoding Sample Rate" (0), "Bitrate" (3), and "Channels" (0).

To configure the **DM NAX (AES67) Receive** stream:

1. Enter a valid multicast IP address in the **Multicast Address** field.
2. Enter the port value of the stream in the **Port** field.
3. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the incoming DM NAX stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

## Routing

Use the **Routing** accordion to configure the audio and video routing behavior of the DM NVX device's internal switcher, secondary audio stream, and DM NVX AV-over-IP receiver.

Input Routing (Autosaved)	
Video	Automatic Input Routing <input checked="" type="checkbox"/>
	Active Video Source: None
	Video Source: None
Audio	Active Audio Source: No Audio Selected
	Audio Source: Audio Follows Video
	Analog Audio Mode: Insert
DM NAX (AES67) Audio	Active Transmit Audio Source: No Audio Selected
	Transmit Audio Source: Audio Follows Video

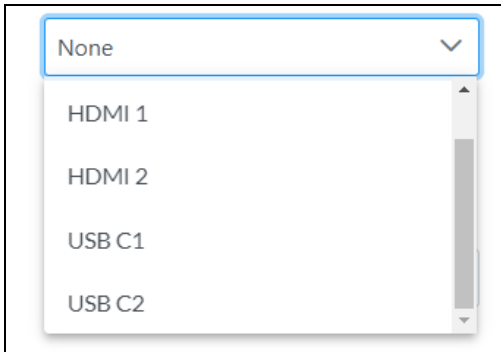
### Input Routing

The **Input Routing** section provides settings relating to the internal video switcher and secondary audio stream of the device:

Set the **Automatic Input Routing** toggle to the right to have the internal video switcher determine the active video source automatically by signal detection. Set the toggle to the left to manually set the active source via the drop-down menus or a control system program.

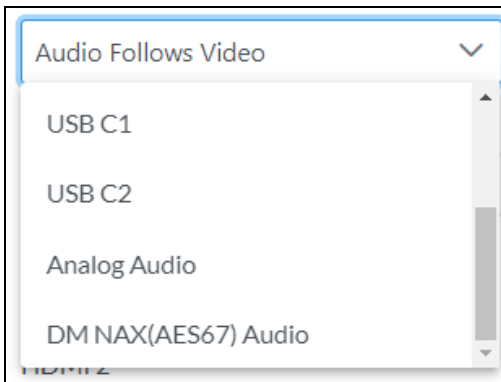
The fields under the **Video** subheading refer specifically to video signal routing:

- The **Active Video Source** read-only field displays the name of the currently active video source.
- Use the **Video Source** drop-down to manually set an active video source from among **None**, **HDMI 1**, **HDMI 2**, **USB C1**, and **USB C2**.

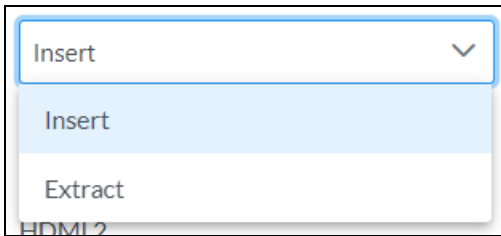


The fields under the **Audio** subheading refer specifically to audio signal routing, which can be handled separately from video routing.

- The **Active Audio Source** read-only field displays the name of the currently active audio source. This reflects the audio that is embedded in the HDMI output (in Receiver mode) or DM NVX AV-over-IP stream (in Transmit mode) of the device, as well as the audio that transmits from the analog audio connector when **Analog Audio Mode** is set to **Extract**.
- Use the **Audio Source** drop-down to manually set an active audio source from among **Audio Follows Video**, **HDMI 1**, **HDMI 2**, **USB C1**, **USB C2**, **Analog Audio**, and **DM NAX (AES67) Audio**.

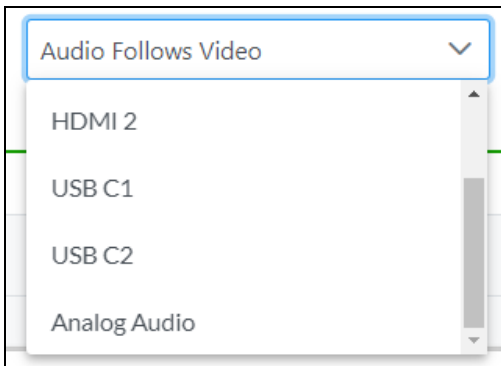


- Use the **Analog Audio Mode** drop-down to select between **Insert** or **Extract**.
  - In **Insert** mode, the analog audio connector will function as an input and the incoming audio signal can be selected as the **Audio Source**.
  - In **Extract** mode, the analog audio connector will function as an output and will transmit the audio signal selected as **Active Audio Source**.



The fields under the **DM NAX (AES67) Audio** subheading refer to the secondary audio stream of the DM NVX device. This is a discrete audio path that is not affected by the **Audio Source** or **Analog Audio Mode** settings.

- The **Active Transmit Audio Source** read-only field displays the name of the audio source currently transmitting on the AES67 secondary audio stream.
- Use the **Transmit Audio Source** drop-down to manually set an AES67 audio source from among **Audio Follows Video**, **HDMI 1**, **HDMI 2**, **USB C1**, **USB C2**, and **Analog Audio**.





## Stream Routing (Receiver Mode Only)

The **Stream Routing** section houses the routing matrix for audio, video, and USB signals that can be received over the network.








**NOTE:** In order for the routing matrix to appear, at least one subscription must be added from the **Subscriptions** accordion. Refer to [Subscriptions \(Receiver Mode Only\)](#) on page 470 for information on adding subscriptions.

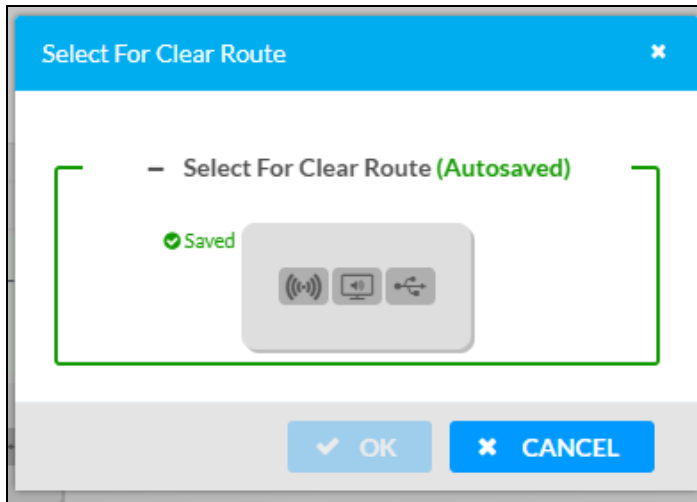
Configure the toggles to establish preferred routing settings:

- Set the **DM NAX (AES67) Audio Follows Video** toggle to the right to have the secondary audio stream match the same routes as the primary AV stream. Set the toggle to the left to manage the secondary audio stream routing independently of the primary AV stream.
- Set the **USB Follows Video** toggle to the right to have USB routes match the routing of the primary AV stream. Set the toggle to the left to manage USB routing independently of the primary AV stream.

Use the routing matrix to establish or break signal routes:

- To route an AV-over-IP stream to the DM NVX device, select the  **Primary A/V** icon in that stream's matrix column. If either the **DM NAX (AES67) Audio Follows Video** or **USB Follows Video** toggles are set to the right, their respective icons will also be selected automatically for that stream.
- To route a DM NAX (AES67) stream to the DM NVX device, select the  **DM NAX (AES67) Audio** icon in that stream's matrix column. To manage this independently of the AV-over-IP stream, the **DM NAX (AES67) Audio Follows Video** toggle must be set to the left.



- To route a USB signal to the DM NVX device, select the  **USB** icon in that stream's matrix column. This icon is only available on USB-capable endpoints. To manage this independently of the AV-over-IP stream, the **USB Follows Video** toggle must be set to the left.
- To break a route, do one of the following:
  - Select the  icon for a given input to clear all routes from that input.
  - Select the  icon for a given output to clear routes from that input. A **Select For Clear Route** window appears.







Select any or all of the signal types to clear all routes of those types from the output, then select **OK** to clear those routes or **Cancel** to cancel the operation.

## Subscriptions (Receiver Mode Only)

The **Subscriptions** accordion allows the DM NVX receiver to subscribe to discovered network AV-over-IP streams for quick routing and switching without having to manually enter multicast addresses or session names.

Subscriptions						
- Subscribed Streams						
No	Device Name	Stream Details	Bitrate	Actions	Reorder	
<input type="checkbox"/>	1	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted), 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	 Unsubscribe	

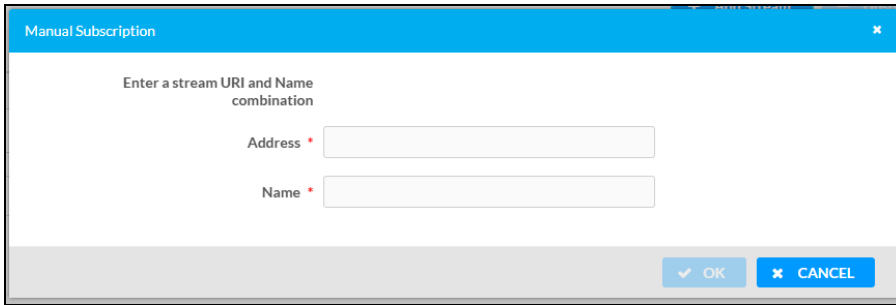
  

- Available Streams						
Device Name	Stream Details	Bitrate	Add Stream			
<input type="checkbox"/>	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted) TS/RTP, 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	 Subscribe		
<input type="checkbox"/>	DM-NVX-E760-00107F9CDC6D	Stream not started	686	 Subscribe		
<input type="checkbox"/>	Input 9	rtsp://172.30.164.169:554/live.sdp (Encrypted) TS/RTP, 239.8.0.64	360	 Subscribe		
<input type="checkbox"/>	DM-NVX-360-C44268588F77	rtsp://172.30.164.163:554/live.sdp (Encrypted) TS/RTP, 239.8.0.0	686	 Subscribe		

The **Subscribed Streams** table displays all network streams that the device is subscribed to. These streams are also available in the routing matrix in the **Routing** accordion. Refer to [Stream Routing \(Receiver Mode Only\) on page 469](#) for information on routing a subscribed stream.

To add a stream to the table, do either of the following:

- Select **+ Add Stream**. A **Manual Subscription** window appears.

A dialog box titled "Manual Subscription" with a blue header and a close button (X) in the top right. The main area contains the text "Enter a stream URI and Name combination". Below this are two input fields: "Address" and "Name", each with a red asterisk to its left. At the bottom right, there are two buttons: "OK" with a checkmark icon and "CANCEL" with an X icon.

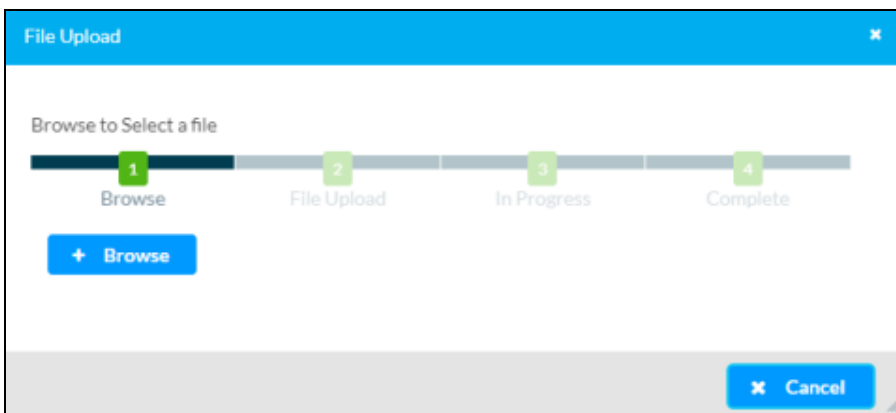
- Enter the multicast address of the stream in the **Address** field.
  - Enter the device name of the transmitting device in the **Name** field.
  - Select **✓ OK** to add the stream to the **Subscribed Streams** list or select **X Cancel** to cancel the operation.
- Select the **Subscribe** button for a stream listed in the **Available Streams** table.

To add multiple streams to the table at once, select the checkbox for each desired stream in the **Available Streams** table, then select **+ Subscribe Checked**.

To remove a stream from the table, select **x Unsubscribe** in its table row. To remove multiple streams at once, select the checkbox for each stream in the **Subscribed Streams** table, then select **- Unsubscribe** at the top of the table.

The **Subscribed Streams** table can also be exported as a .xml file to other DM NVX receivers. This allows the subscription process to be performed even more efficiently on other receivers. To export the table and upload it to another receiver:

1. Subscribe to all of the desired network streams.
2. Select **Save Subscription** at the top of the **Subscribed Streams** table. A .xml file will be downloaded to the connected PC.
3. Log in to the next DM NVX receiver's web interface and navigate to its **Subscriptions** accordion.
4. Select **Load Subscriptions** at the top of the **Subscribed Streams** table. A **File Upload** window appears.

A dialog box titled "File Upload" with a blue header and a close button (X) in the top right. The main area contains the text "Browse to Select a file". Below this is a progress bar with four steps: 1. Browse (highlighted in dark blue), 2. File Upload, 3. In Progress, and 4. Complete. Below the progress bar is a blue button with a plus sign and the text "Browse". At the bottom right, there is a blue button with an X icon and the text "Cancel".

5. Select **+ Browse**. Locate the .xml file, then select **Upload** to upload it to the DM NVX device. When the upload completes, the window will close and the interface will return to the **Subscriptions** accordion with the **Subscribed Streams** table filled out.

## Inputs

The **Inputs** accordion contains EDID settings and individual input configuration options for the local input connectors on the DM NVX device.

Name	Sync Detected	EDID	Resolution	HDCP Receiver Capability	Source HDCP	Actions
HDMI 1	Yes	4K60 444 2CH Non-HDR	3840x2160@60	Auto	HDCP 2.x	<a href="#">Edit</a>
HDMI 2	No	4K60 444 2CH Non-HDR	0x0@0	Auto	No Signal	<a href="#">Edit</a>
USB-C1	No	4K60 444 2CH Non-HDR	0x0@0	Auto	No Signal	<a href="#">Edit</a>
USB-C2	No	4K60 444 2CH Non-HDR	0x0@0	Auto	No Signal	<a href="#">Edit</a>

Use the **Send EDID to all Inputs** drop-down under the **Global EDID** subheading to send a specific EDID file to all of the local inputs of the DM NVX device.

To configure an input individually, select its respective **Edit** button. An **Edit Input** window appears. The settings available in the **Edit Input** window depend on the input connector type.

### Edit Input (HDMI Input)

The **Edit Input** window will open to the **Status** tab by default. This tab displays sync, resolution, HDCP, and audio information for the connector and input source.

Edit Input ✕

DM-NVX-384C-REV-B-C4426863364B > Inputs  
**HDMI 1**

✓ Status ⚙ Settings

▼ Input Signal

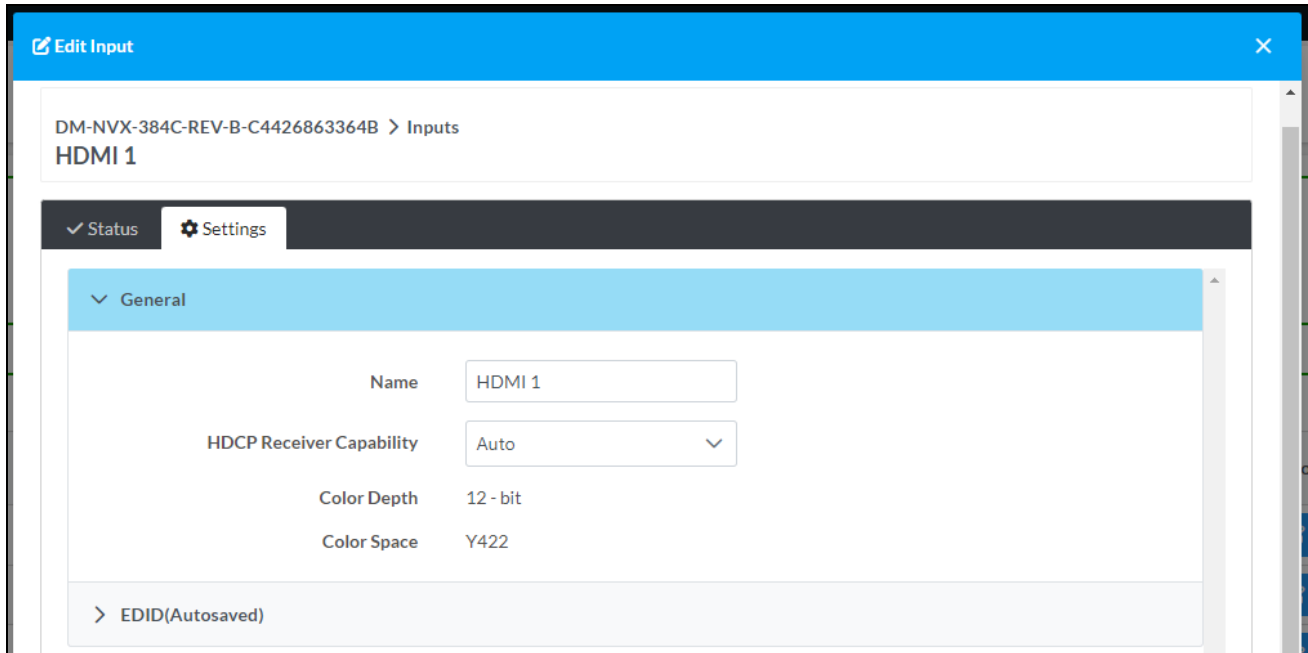
Sync Detected	Yes
Resolution	3840 x 2160 @ 60
Source HDCP	Active

— More Details

HDCP State	Authenticated
Interlaced	No
Horizontal Resolution	3840
Vertical Resolution	2160
Frames Per Second	60
Aspect Ratio	16 : 9
Audio Format	PCM
Audio Channels	2

✓ OK ✕ CANCEL

Select the **Settings** tab to configure the available input settings for the HDMI input.



The **General** accordion is open by default.

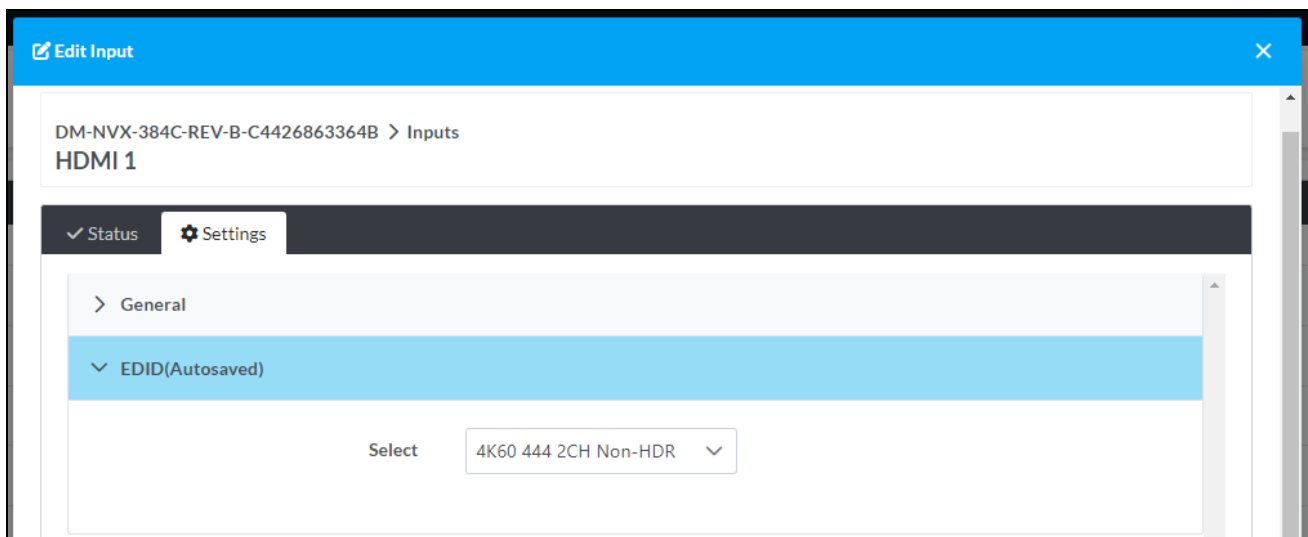
Enter a friendly name for the input in the **Name** text entry field.

Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version. The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display.

**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal.

Select the **EDID** accordion to access EDID settings specific to the selected input.

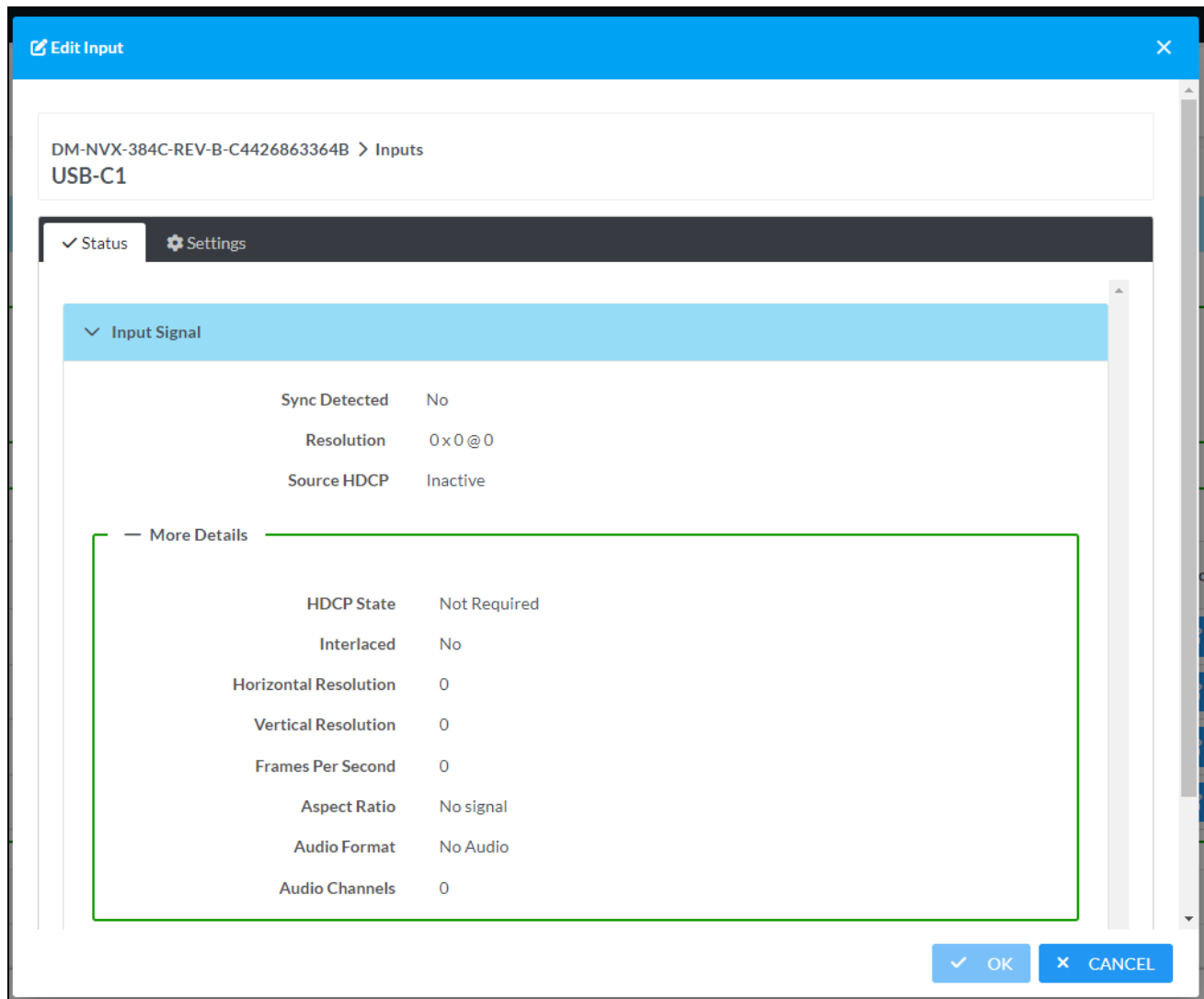


Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 433](#) for more information on loading custom EDIDs to this list.

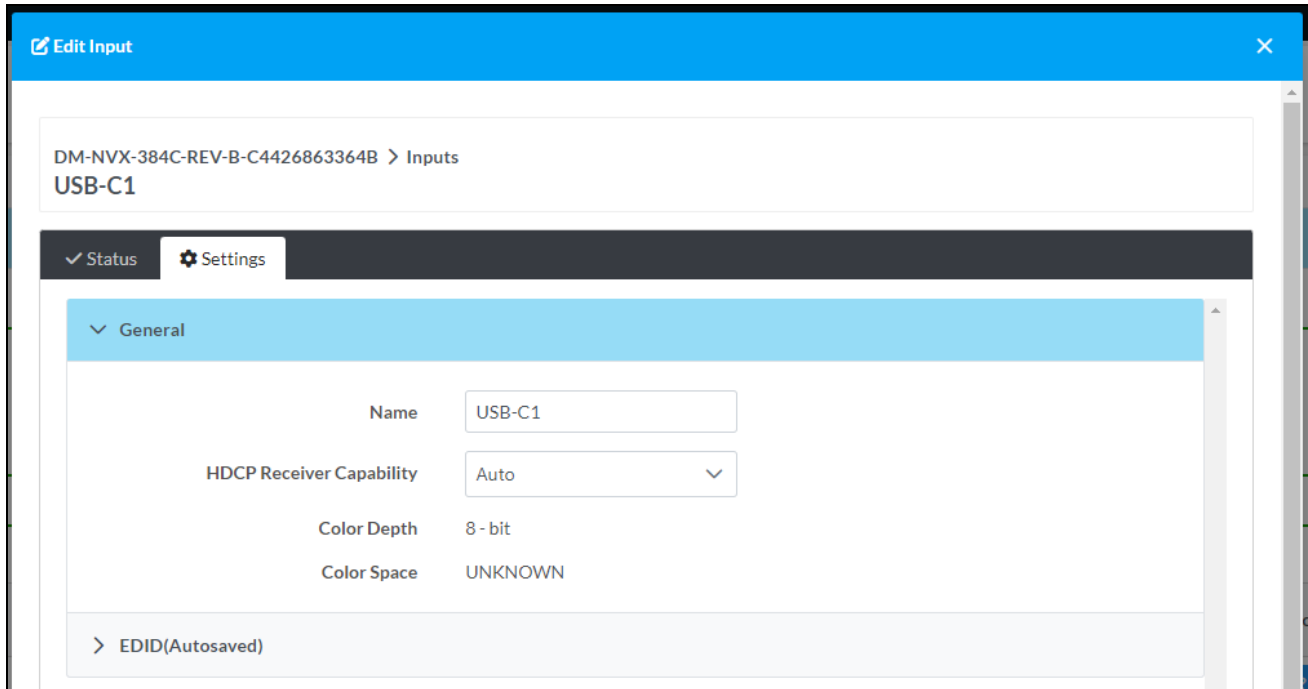
Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.

## Edit Input (USB-C Input)

The **Edit Input** window will open to the **Status** tab by default. This tab displays sync, resolution, HDCP, and audio information for the connector and input source.



Select the **Settings** tab to configure the available input settings for the USB-C input.



The **General** accordion is open by default.

Enter a friendly name for the input in the **Name** text entry field.

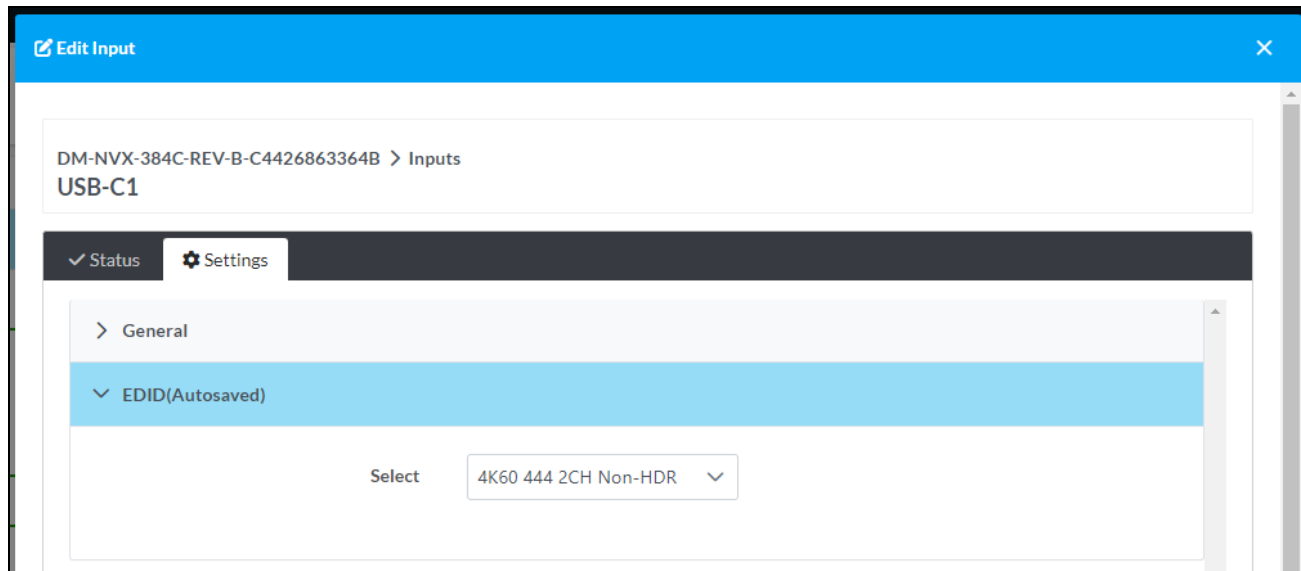
Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version (**HDCP 1.4** or **HDCP 2.x**). The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display.

**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal.



Select the **EDID** accordion to access EDID settings specific to the selected input.

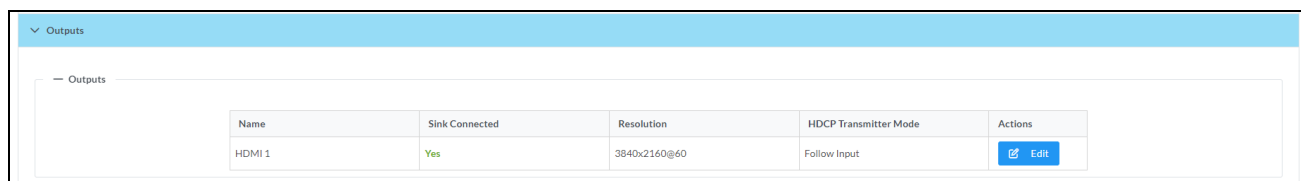


Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 433](#) for more information on loading custom EDIDs to this list.

Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.

## Outputs

The **Outputs** accordion contains status information and an **Edit** option for the local HDMI output connector on the DM NVX device.



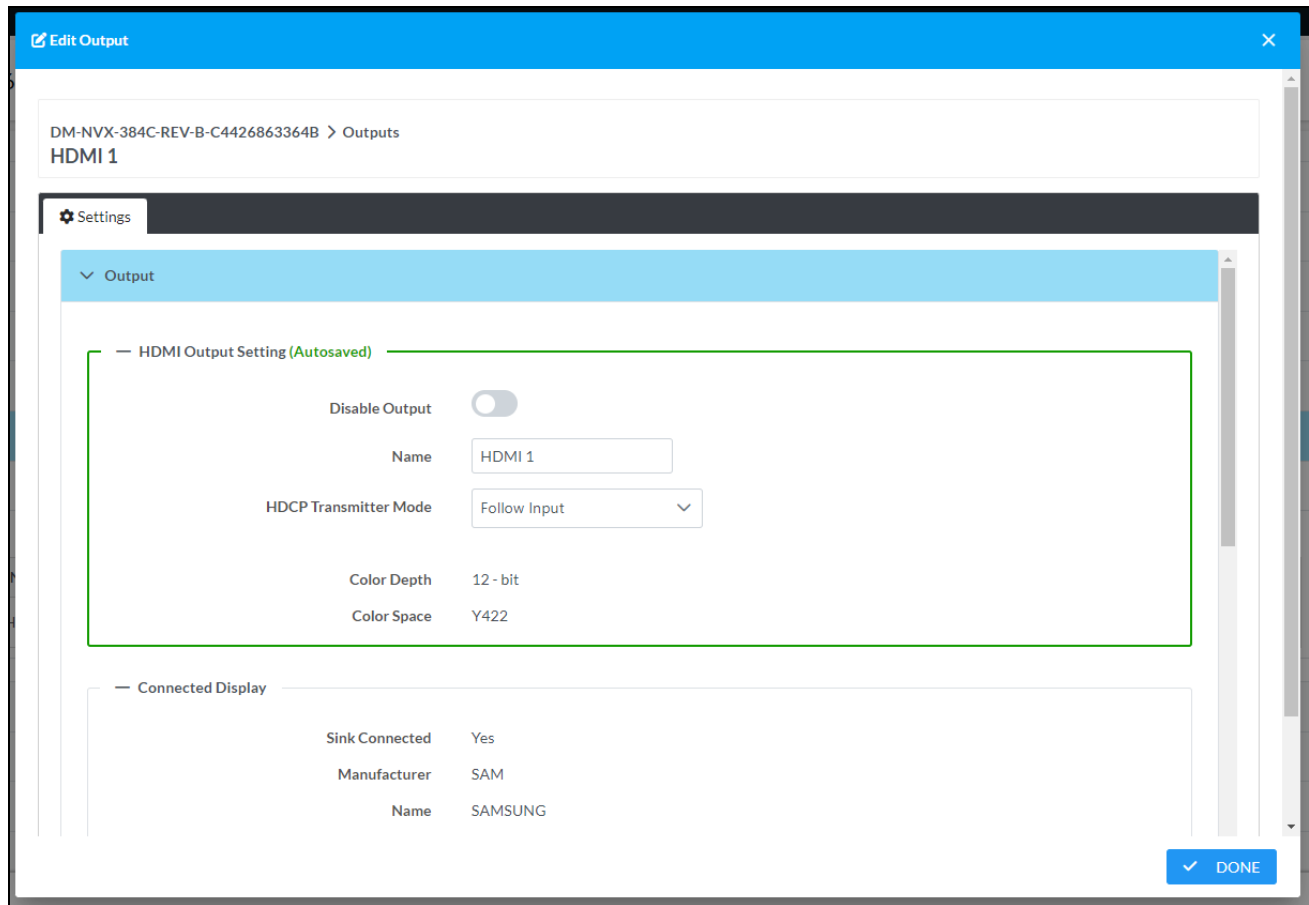
Name	Sink Connected	Resolution	HDCP Transmitter Mode	Actions
HDMI 1	Yes	3840x2160@60	Follow Input	<a href="#">Edit</a>

To configure the output, select the **Edit** button. An **Edit Output** window appears. The settings available in the **Edit Output** window depend on which mode the DM NVX device is in:

- [Edit Output - Output Accordion \(Transmitter Mode\) on page 478](#)
- [Edit Output - Output Accordion \(Receiver Mode\) on page 481](#)

## Edit Output - Output Accordion (Transmitter Mode)

The **Output** accordion is open by default.



### HDMI Output Settings


Configure basic settings under the **HDMI Output Setting** subheading:

- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Enter a friendly name for the output in the **Name** text entry field.
- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **Follow Input:** The HDCP level of the output will be forced to the supported HDCP level of the local input.
  - **Force Highest:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the entire signal chain.
  - **Never Authenticate:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.

## Connected Display

**— Connected Display**

<b>Sink Connected</b>	Yes
<b>Manufacturer</b>	SNY
<b>Name</b>	SONY TV*30

 Save CEDID

The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 433](#) for more information on loading custom EDID files.

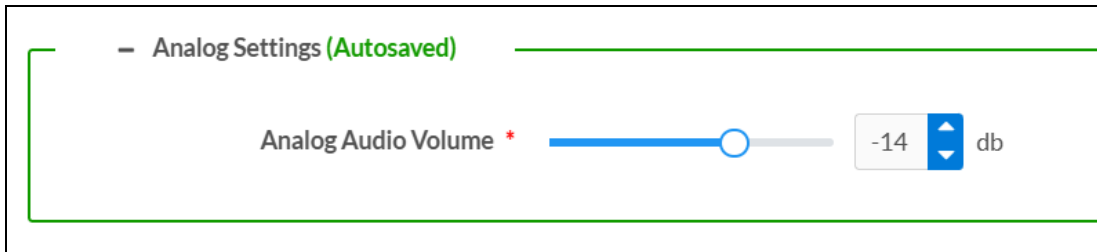
## Output Signal

**— Output Signal**

<b>Transmitting</b>	Yes
<b>Resolution</b>	3840x2160@60
<b>Horizontal Resolution</b>	3840
<b>Vertical Resolution</b>	2160
<b>Frames PerSecond</b>	60
<b>Aspect Ratio</b>	16:9
<b>Audio Format</b>	No Audio
<b>Audio Channels</b>	0

The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

## Analog Settings

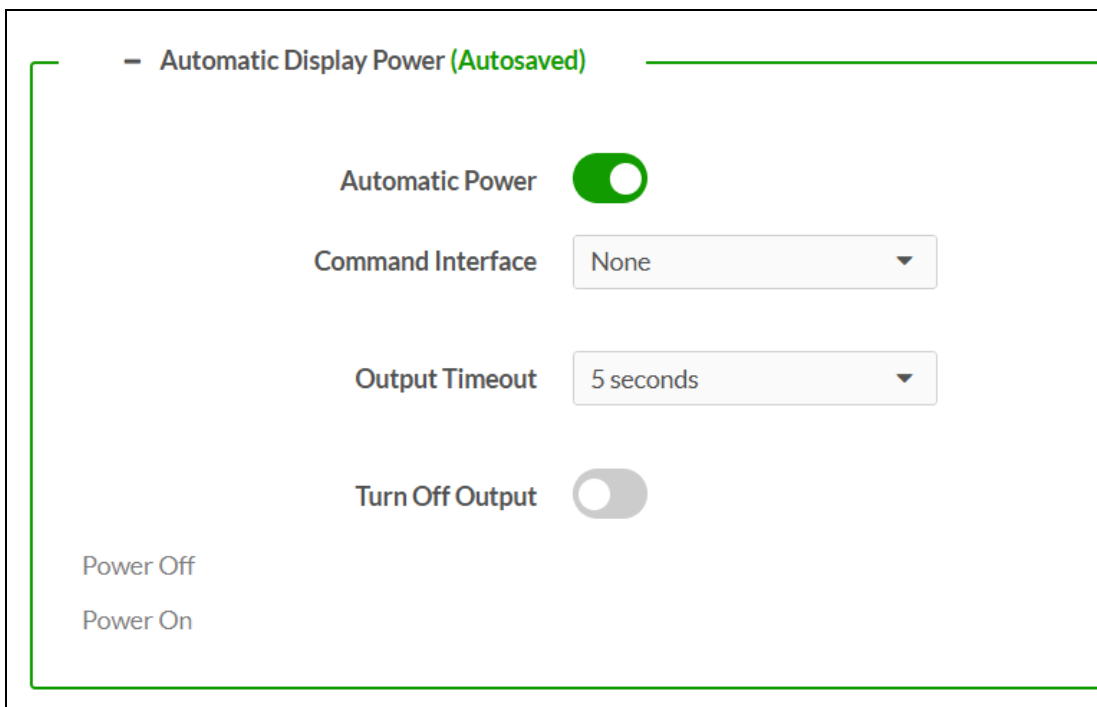


To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.

## Automatic Display Power



The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

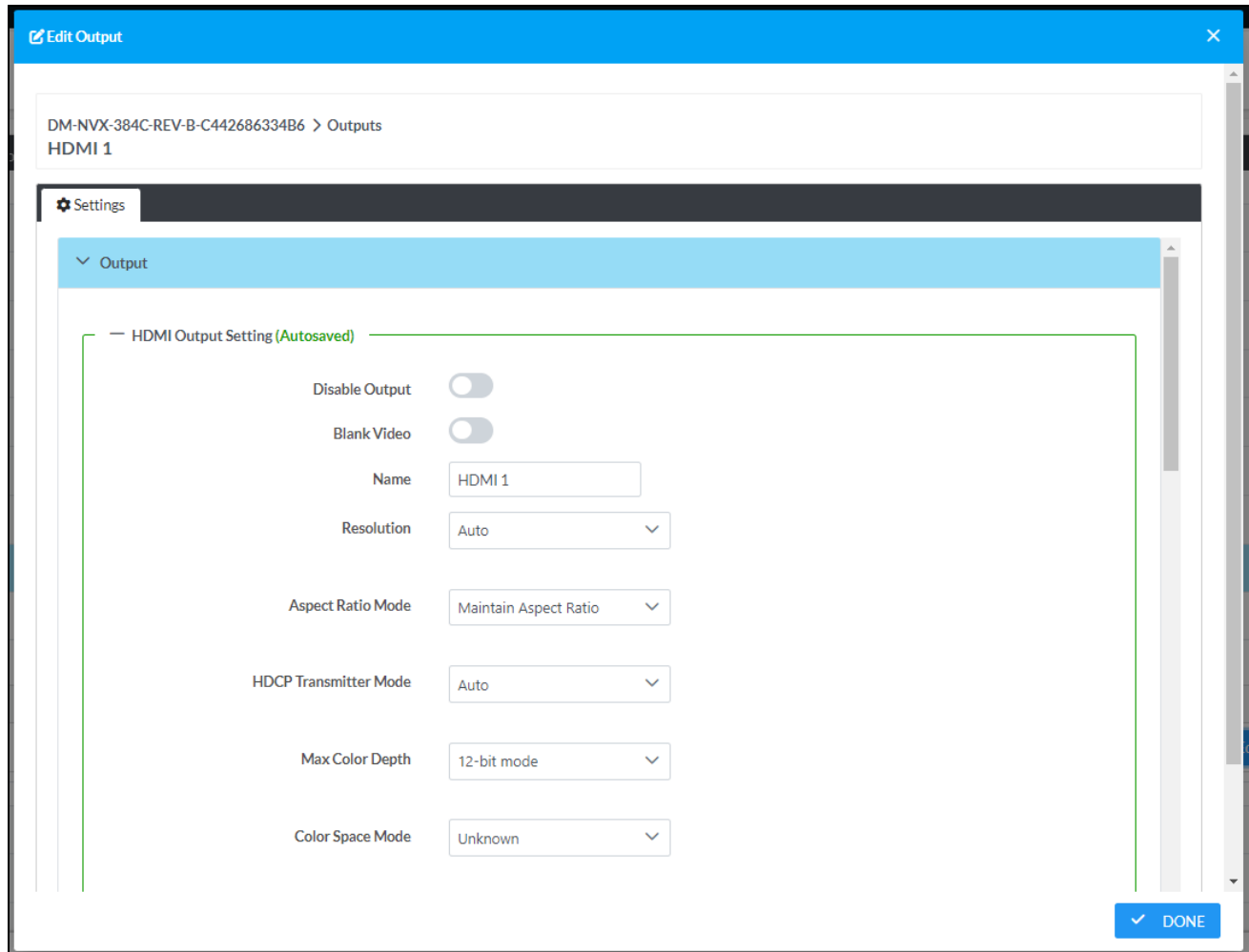
Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**

**NOTE:** **IR** and **RS-232** are not available on card-based models.

Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.

## Edit Output - Output Accordion (Receiver Mode)

The **Output** accordion is open by default.



### HDMI Output Settings

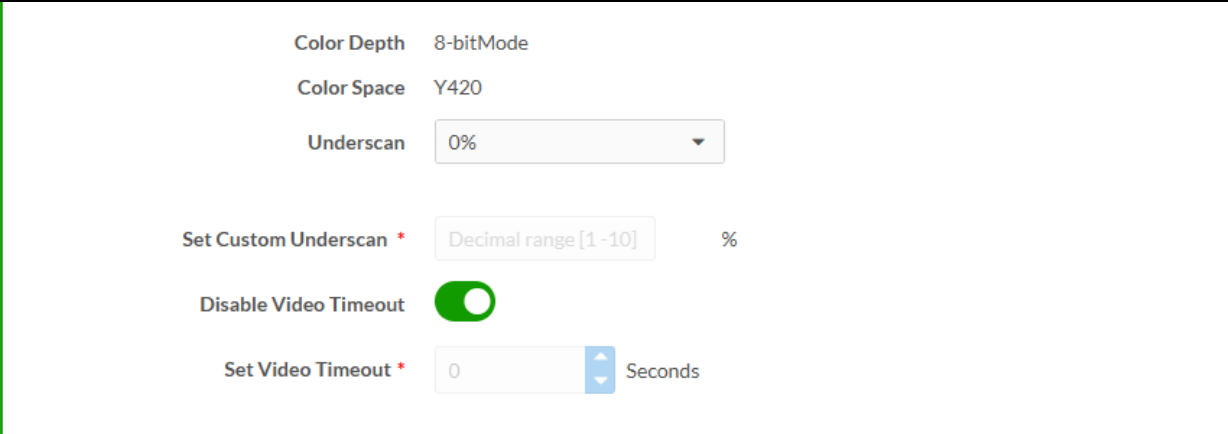
Configure basic settings under the **HDMI Output Setting** subheading:

- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Set the **Blank Video** toggle to the right to transmit a full-screen black video signal. Set the toggle to the left to transmit the video signal of the selected input.
- Enter a friendly name for the output in the **Name** text entry field.
- Use the **Resolution** drop-down to select between **Auto** or any of the available fixed resolutions. This enables the internal scaler to either match the highest possible resolution of the display or the selected fixed resolution.

- Use the **Aspect Ratio Mode** drop-down to select between:
  - **Maintain Aspect Ratio:** The aspect ratio of the source signal is preserved at the output. This may result in letter-boxing or pillar-boxing black bars at the edges of the display area.
  - **Stretch To Fit:** The aspect ratio of the source signal is stretched to fit the aspect ratio of the display. This may distort the image of the incoming video signal.
  - **1:1 Pixel Mapping:** The source signal is mapped 1:1 at the display without any aspect ratio scaling. This will preserve the aspect ratio of the source signal, but may not fill the entire display area, resulting in black borders around the image.
  - **Zoom:** The aspect ratio of the source signal is zoomed in to meet the full height or width capabilities of the display, whichever is greater than the incoming signal. This may crop out parts of the incoming video signal.
- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **Follow Input:** The HDCP level of the output will be forced to the supported HDCP level of the local input.
  - **Force Highest:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the entire signal chain.
  - **Never Authenticate:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.
- Use the **Max Color Depth** drop-down to limit the color depth to a specific bit depth.
- Use the **Color Space Mode** drop-down to select between **Auto** or a specific color mode to force the output signal to.

**NOTE:** The options available in the **Max Color Depth** and **Color Space Mode** drop-downs may be limited by the resolution of the output signal. Refer to the maximum supported resolutions table in [DM-NVX-384 Specifications on page 176](#) for information on supported depths and spaces at each maximum resolution.

- The **Color Depth** and **Color Space** fields are read-only values that display the current depth and space of the video output signal, respectively.



The screenshot displays a control panel for video output settings. It includes the following elements:


- Color Depth:** 8-bit Mode
- Color Space:** Y420
- Underscan:** 0% (with a dropdown arrow)
- Set Custom Underscan \*:** Decimal range [1-10] %
- Disable Video Timeout:** A green toggle switch is turned on.
- Set Video Timeout \*:** 0 Seconds (with a numeric input field and a 'Seconds' label)

- Use the **Underscan** drop-down to select an underscan percentage from between **0%**, **2.5%**, **5%**, **7.5%**, or **Custom**.
  - Selecting **0%** will maintain the size of the source image area relative to the full video resolution and will preserve the image aspect ratio. Selecting higher values will shrink the size of the source image within its resolution while still preserving its aspect ratio. Any pixels outside of the image area in the full resolution will be filled by a black border.
  - When **Custom** is selected, the **Set Custom Underscan** text entry field will become available.
- Use the **Set Custom Underscan** field to enter an underscan percentage from 1 to 10% in integer values. This field is only available when **Custom** is selected in the **Underscan** drop-down.
- Set the **Disable Video Timeout** toggle to the right to prevent the output signal from turning off when a source signal is no longer detected. Set the toggle to the left to enable a video timeout. When the toggle is set to the left, the **Set Video Timeout** text box will become available.
- Use the **Set Video Timeout** text box to determine how long the device will wait to disable the HDMI output after an input video signal is no longer detected. Enter a time in seconds or use the arrows to set the timeout. By default, the timeout is set to 0 seconds. This text box is only available when the **Disable Video Timeout** toggle is set to the left.

### Connected Display

**— Connected Display**

<b>Sink Connected</b>	Yes
<b>Manufacturer</b>	SNY
<b>Name</b>	SONY TV*30



The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 433](#) for more information on loading custom EDID files.

## Output Signal

- Output Signal	
Transmitting	Yes
Resolution	3840x2160@60
Horizontal Resolution	3840
Vertical Resolution	2160
Frames PerSecond	60
Aspect Ratio	16:9
Audio Format	No Audio
Audio Channels	0

The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

## Analog Settings

- Analog Settings (Autosaved)	
Analog Audio Volume *	<input type="range"/> -14 db

To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.



## Layout

The screenshot shows a settings panel with the following elements:

- A title bar: **Layout (Autosaved)**
- A field for **Horizontal Bezel Compensation \*** with a value of **0** and up/down arrows.
- A field for **Vertical Bezel Compensation \*** with a value of **0** and up/down arrows.
- A **Layout** section with two radio button options:
  - Full Screen**
  - Video Wall**

Use the settings under the **Layout** subheading to manage the bezel compensation of the output signal and to enable video wall mode.

The **Bezel Compensation** fields allow the output signal to compensate for the width of the bezels on the display to provide a more seamless appearance in video wall mode.

To adjust the bezel compensation:

- Use the arrows or enter a value in the **Horizontal Bezel Compensation** field. This sets the width of the bezels on the left and right of the display. Values range from 0 to 500 pixels.
- Use the arrows or enter a value in the **Vertical Bezel Compensation** field. This sets the height of the bezels on the top and bottom of the display. Values range from 0 to 500 pixels.

Multiple DM NVX decoder devices with output scalers can be combined to form a video wall composed of up to 64 individual displays (8 columns by 8 rows). A separate scaling decoder is required for each display. To enable video wall mode, select **Video Wall** from the **Layout** options.

To configure the video wall:

1. Use the arrows or enter a value to set the **Width** text box to the desired number of columns of displays. Values range from 1 to 8. The default value is 1.
2. Use the arrows or enter a value to set the **Height** text box to the desired number of rows of displays. Values range from 1 to 8. The default value is 1.


3. Select the desired location for the current DM NVX device among the video wall by selecting its corresponding rectangle. In the image below, the DM NVX decoder being configured will output video to the top left display in an 8x8 video wall.

Video Wall

Width \* 8

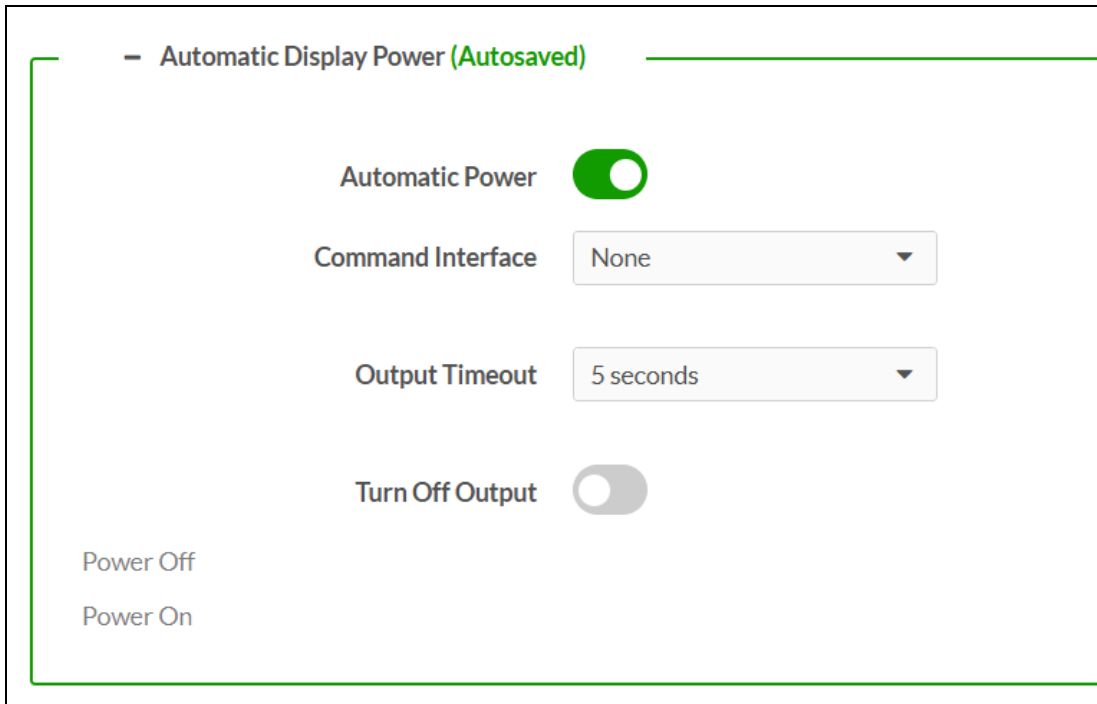
Height \* 8

\* Video Wall - Select one target displays

	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								

4. Repeat this process on all DM NVX decoders in the video wall.

## Automatic Display Power



The screenshot shows a settings panel titled "Automatic Display Power (Autosaved)". It contains four main settings:

- Automatic Power:** A green toggle switch is turned on.
- Command Interface:** A dropdown menu is set to "None".
- Output Timeout:** A dropdown menu is set to "5 seconds".
- Turn Off Output:** A grey toggle switch is turned off.

At the bottom left of the panel, there are two sub-headings: "Power Off" and "Power On", which correspond to the "Turn Off Output" toggle.

The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**.

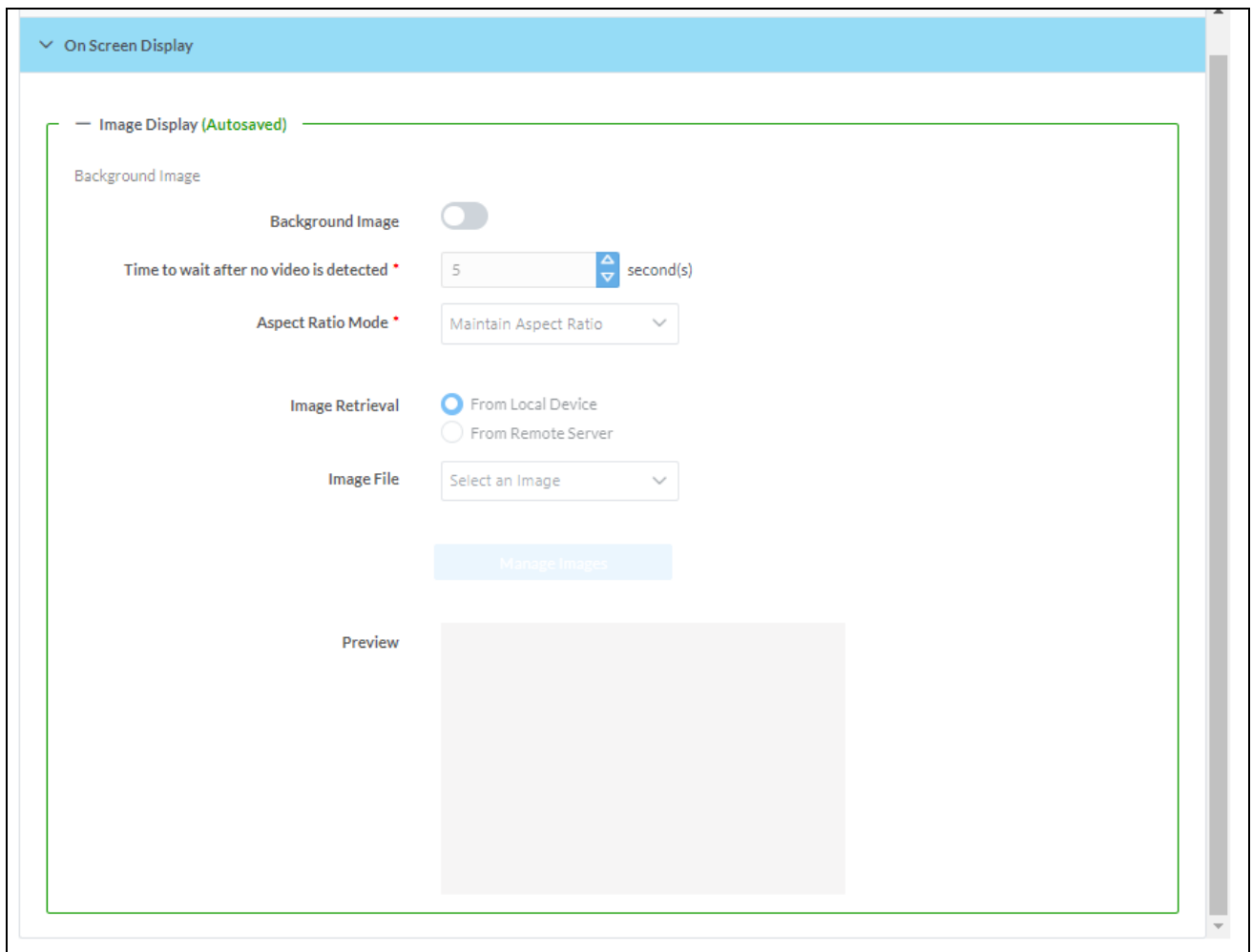
**NOTE:** IR and RS-232 are not available on card-based models.

Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.

### Edit Output - On Screen Display Accordion (Receiver Mode)

Select the **On Screen Display** accordion to expand it. This accordion houses the **Image Display** settings that allow a static background image to be shown on the connected display.

**CAUTION:** Displaying a static image for extended periods of time may result in image burn-in on any type of connected display. Consult documentation from the display manufacturer to determine recommended timeout or image refresh settings to avoid burn-in.



To configure the **Image Display** settings:

1. Set the **Background Image** toggle to the right to display a background image on the connected display, and to make all the other settings in the accordion available for configuration.
2. Enter a value in the **Time to wait after no video is detected** field from 5 seconds to 65,535 seconds to determine how long the device will wait after input signal is no longer detected before displaying the background image.
3. Use the **Aspect Ratio Mode** drop-down to select one of the following:
  - **Maintain Aspect Ratio:** The aspect ratio of the background image is preserved at the output. This may result in letterboxing or pillarboxing black bars at the edges of the display area.
  - **Stretch:** The aspect ratio of the background image is stretched to fit the aspect ratio of the display. This may distort the background image.
  - **1:1:** The background image is mapped 1:1 at the display without any aspect ratio scaling. This will preserve the aspect ratio of the image, but may not fill the entire display area, resulting in black borders around the image.

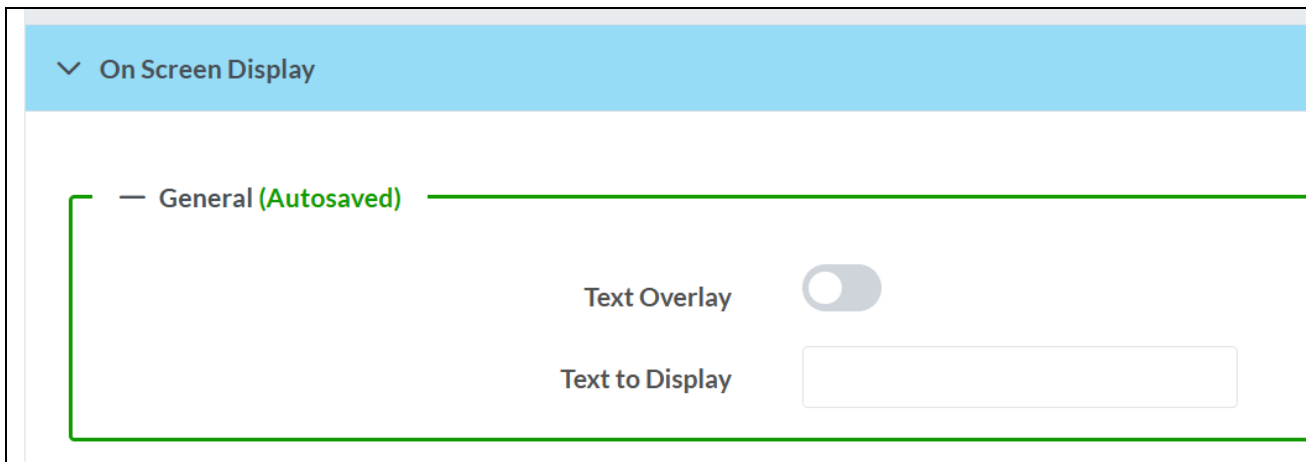
4. Select an option for **Image Retrieval**:

- **From Local Device:** Select this option if an image stored locally on the DM NVX device will be used as the background image. Select the desired image from the **Image File** drop-down. To load custom images to the DM NVX device, select **Manage Images** from the **Edit Output** window or from the **Action** menu. Refer to [Action on page 433](#) for more information.
- **From Remote Server:** Select this option if an image hosted on a network server will be used as the background image. Enter the network file path to the image in the **Remote Path** field.
  - This option also allows the DM NVX device to refresh the image at a given interval. To have the DM NVX refresh the image, select the **Refresh** checkbox below the **Image Preview**, then enter a refresh rate in minutes from 1 to 65,535 minutes. The default refresh rate is 60 minutes.

To disable the background image, set the **Background Image** toggle to the left.

## On Screen Display

The **On Screen Display** accordion enables setting a text string to overlay onto the video output signal.

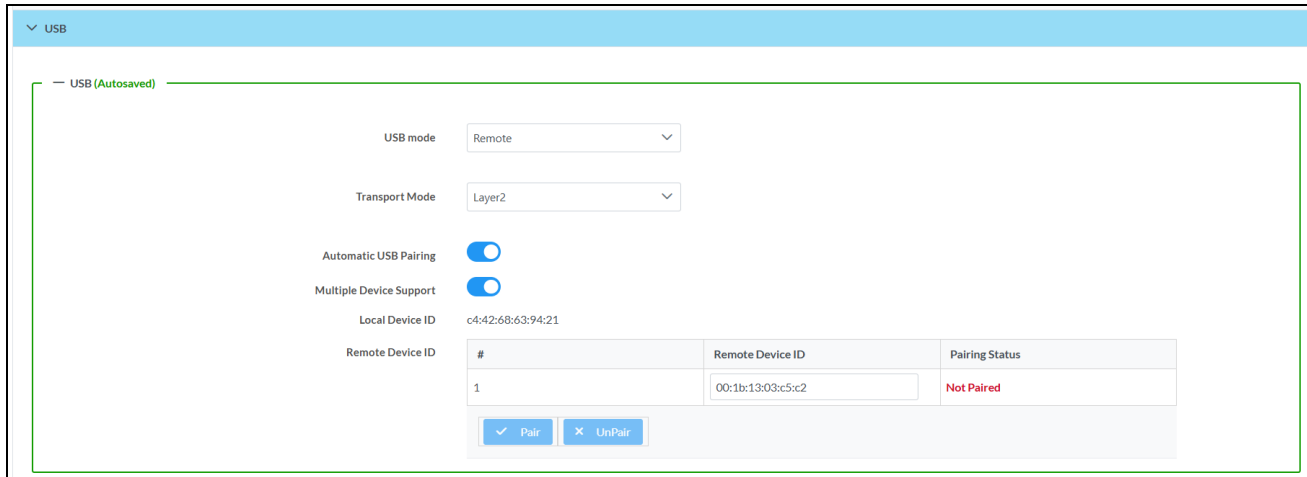


To add a text string to the video output signal:

1. Set the **Text Overlay** toggle to the right to enable the feature.
2. Enter the desired text string in the **Text to Display** field.

# USB

Use the **USB** accordion to configure USB-over-Ethernet and USB hot key settings for the DM NVX device.



To configure USB routing, follow the steps below. These steps must be repeated on both devices in a given USB pairing for the two devices to pair successfully:

1. Select a **USB mode** from the drop-down:
  - In **Local** mode, USB signals from another **Remote** device on the network are extended to the **TO HOST DP-S USB2 (IN 3-4)** connectors of the DM NVX device.
  - In **Remote** mode, USB devices connected to the **USB2 TO DEVICE** and **HID TO DEVICE** ports are extended over the network to a **Local** device.
2. Select a **Transport Mode** from the drop-down:
  - **Layer 2:** Enables Layer 2 transport of USB 2.0 data. This mode is compatible with DM-NVX-35x(C), DM-NVX-36x(C), DM-NVX-38X(C), and DM NUX USB-over-Ethernet devices ([DM-NUX-L2](#) and [DM-NUX-R2](#)). Devices will pair via MAC address.
  - **Layer 3:** Enables Layer 3 transport of USB 2.0 data across VLANs. This mode is compatible with DM-NVX-35x(C), DM-NVX-36x(C), and DM-NVX-38X(C) devices. Devices will pair via IP address.

**NOTE:** This mode is not compatible with DM NUX USB-over-Ethernet devices.

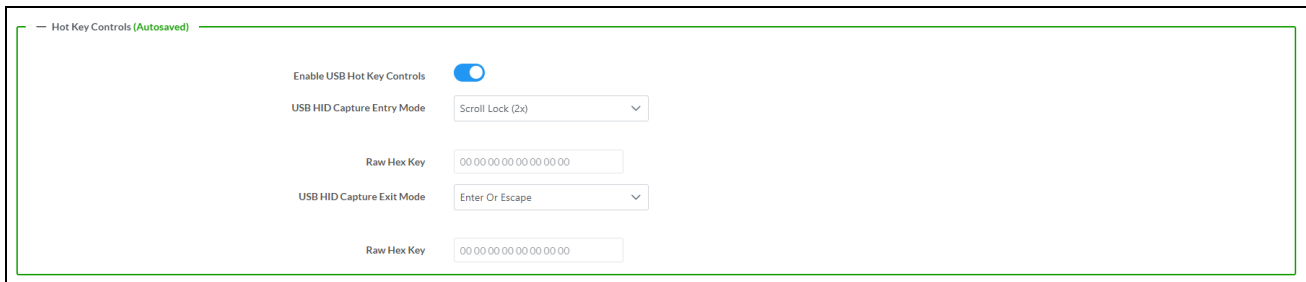
3. Set the **Automatic USB Pairing** toggle to the right to enable or left to disable **Automatic Pairing**. With **Automatic Pairing** enabled, once a **Remote Device ID** is entered in the **Remote Device ID** table, and the corresponding device also has the matching **Remote Device ID** entered in its table, the devices will pair automatically.
4. Set the **Multiple Device Support** toggle to the right to right to enable or left to disable **Multiple Device Support**. If the device is set to **Local** mode and **Layer 2** transport, **Multiple Device Support** allows it to receive USB data from up to seven **Remote** extenders. A hub must be used to connect devices to the **TO DEVICE** port of each DM NVX **Remote** extender.

5. Enter the applicable ID strings in the **Remote Device ID** table:
  - If the device is set to **Local** mode and **Layer 2** transport, enter the MAC address of each remote extender. **Multiple Device Support** must be enabled to enter more than one remote extender.
  - If the device is set to **Local** mode and **Layer 3** transport, enter the IP address of the remote extender.
  - If the device is set to **Remote** mode and **Layer 2** transport, enter the MAC address of the local extender.
  - If the device is set to **Remote** mode and **Layer 3** transport, enter the IP address of the local extender.
6. Once the ID strings have been entered on both the local and remote devices, select **Pair** to pair the devices. If **Automatic USB Pairing** is enabled, pairing will occur automatically once the ID strings have been entered.

To remove pairing between DM NVX devices:

- If **Automatic USB Pairing** is disabled, select **UnPair**.
- If **Automatic USB Pairing** is enabled and **Layer 2** transport is selected, enter a MAC address of 00:00:00:00:00:00 in the **Remote Device ID** field.
- If **Automatic USB Pairing** is enabled and **Layer 3** transport is selected, enter an unused IP address in the **Remote Device ID** field.

The **Hot Key Controls** portion of the accordion provides settings for entering and exiting USB HID capture mode. USB HID capture mode allows HID keyboard presses to output serial data from the USB Hotkey symbol of the DM NVX device's SIMPL Windows device definition. Refer to the [USB Hotkey symbol help file](#) for more information on using this symbol in a SIMPL Windows control system program.



To configure the **Hot Key Controls** settings:

1. Set the **Enable USB Hot Key Controls** toggle to the right to enable the **USB HID Capture Entry Mode** and **USB HID Capture Exit Mode** hot keys. Set the toggle to the left to disable the hot keys.
2. Select a **USB HID Capture Entry Mode** hot key option from the drop-down. This is the HID keyboard key (or combination of keys) that will put the **USB Hotkey** SIMPL symbol into HID capture mode. While in this mode, any HID keyboard presses will output as raw hex data on the **Message\_F** serial join of the symbol.
  - a. If **Custom** was selected from the drop-down, enter the serial data for the key (or keys) into the **Raw Hex Key** text entry. This data can be pulled from the **USB Hotkey** SIMPL symbol's **Message\_F** serial join via the SIMPL Debugger utility in Crestron Toolbox™ software.

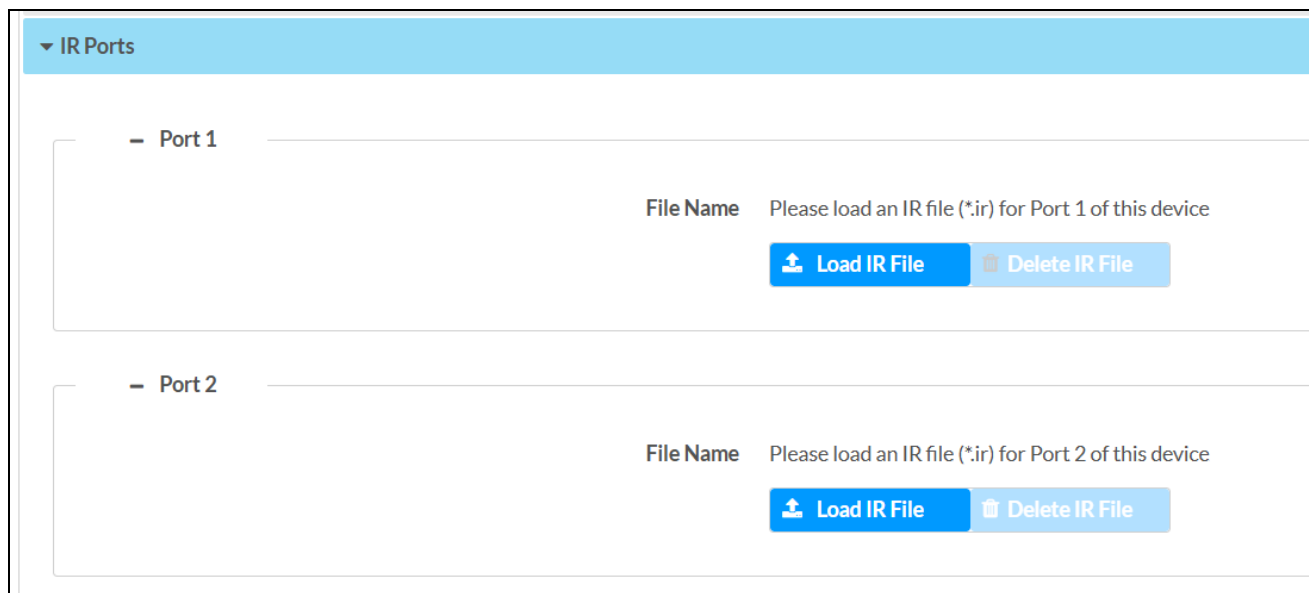
3. Select a **USB HID Capture Exit Mode** hot key option from the drop-down. This is the HID keyboard key (or combination of keys) that will exit the **USB Hotkey SIMPL** symbol from HID capture mode.
  - a. If **Custom** was selected from the drop-down, enter the serial data for the key (or keys) into the **Raw Hex Key** text entry. This data can be pulled from the **USB Hotkey SIMPL** symbol's **Message\_F** serial join via the SIMPL Debugger utility in Crestron Toolbox™ software.

**NOTE:** While in **USB HID Capture Mode**, all HID data from a connected keyboard is output as raw hex data from the SIMPL symbol's **Message\_F** serial join instead of being forwarded to a connected Host device.

## IR Ports

**NOTE:** This accordion is not available on card-based models.

The **IR Ports** accordion allows custom IR files containing device commands to be uploaded to the DM NVX device for each IR connector. Custom IR files can be generated via the [Device Learner](#) utility within Crestron Toolbox software. Each IR port can hold only one IR file at a time. IR files must be loaded to each port individually.

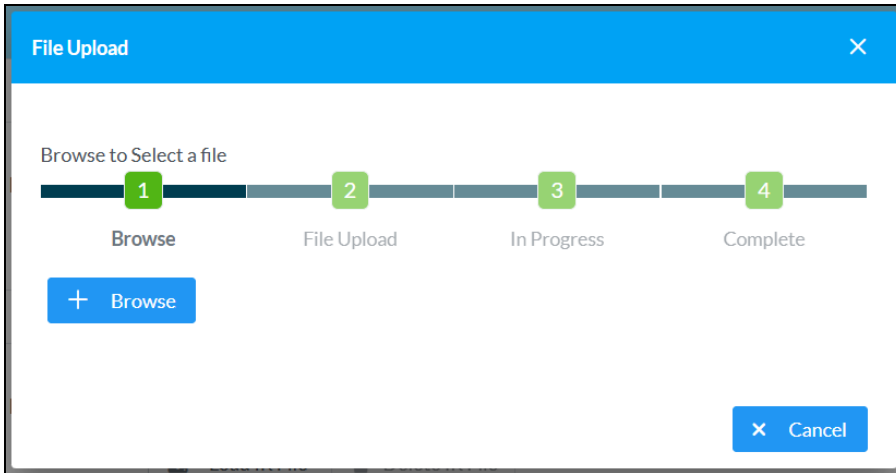


The screenshot displays the 'IR Ports' configuration interface. It features a light blue header with a dropdown arrow and the text 'IR Ports'. Below the header, there are two accordion-style sections, one for 'Port 1' and one for 'Port 2'. Each section contains a 'File Name' label followed by a text prompt: 'Please load an IR file (\*.ir) for Port 1 of this device' for Port 1 and 'Please load an IR file (\*.ir) for Port 2 of this device' for Port 2. To the right of each text prompt are two buttons: a blue button with an upload icon labeled 'Load IR File' and a light blue button with a trash icon labeled 'Delete IR File'.



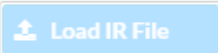

To upload an IR file to a given IR port:

1. Select **Load IR File**.
2. In the **File Upload** window that appears, select **+ Browse**.



3. Locate and select the desired IR file, then select **Open**. The selected file name is displayed.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The IR file is now loaded to the IR port.

Once the IR file is uploaded, its filename will appear next to the IR port it was uploaded to. A read-only table showing all included commands will also appear and populate.

<b>File Name</b>	TV.ir									
										
<b>Commands</b>	<table border="1"><thead><tr><th>IR Code</th><th>IR Command</th></tr></thead><tbody><tr><td>1</td><td>On</td></tr><tr><td>2</td><td>Off</td></tr><tr><td>3</td><td>Input</td></tr></tbody></table>	IR Code	IR Command	1	On	2	Off	3	Input	
IR Code	IR Command									
1	On									
2	Off									
3	Input									

To delete an IR file from a given IR port, select **Delete IR File**.

## Port Selection

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment device management, video, AES67, and USB traffic to discrete Ethernet ports. With **Port Selection** disabled, the additional Ethernet ports of the DM NVX device can be used as courtesy ports to extend the connected LAN to a local network device. With **Port Selection** enabled on all DM NVX devices on a network, traffic types can be physically separated from the control network onto dedicated networks.

▼ Port Selection

<b>Port Selection</b>	<input checked="" type="checkbox"/>
<b>Management</b>	Port1 <span>▼</span>
<b>Video</b>	Port1 <span>▼</span>
<b>Audio/NAX</b>	Port1 <span>▼</span>
<b>USB</b>	Port1 <span>▼</span>

To configure **Port Selection**:

1. Set the **Port Selection** toggle to the right to enable **Port Selection**. Set the toggle to the left to disable **Port Selection**. By default, **Port Selection** is disabled.
2. With **Port Selection** enabled:
  - a. Select an Ethernet port from the **Management** drop-down to designate it to handle network traffic relating to device configuration and connection to a control system.
  - b. Select an Ethernet port from the **Video** drop-down to designate it to handle the DM NVX AV-over-IP streaming network traffic.
  - c. Select an Ethernet port from the **Audio/NAX** drop-down to designate it to handle audio-over-IP streaming network traffic.

**NOTE:** The audio signal in the primary DM NVX AV-over-IP stream will still traverse the port designated by the **Video** drop-down. The **Audio/NAX** drop-down only designates the port for the secondary audio stream.

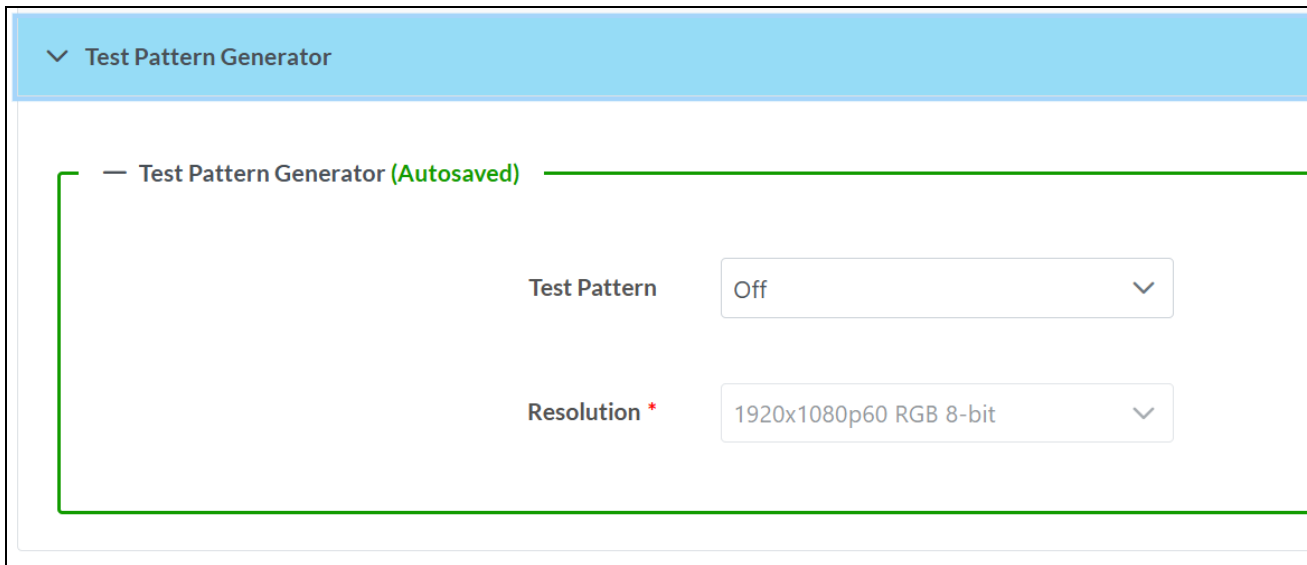
- d. Select an Ethernet port from the **USB** drop-down to designate it to handle USB-over-Ethernet traffic.
3. Select **Save** to apply the new settings.

**NOTE:** Changes to **Port Selection** will require a device reboot.

## Test Pattern Generator

The **Test Pattern Generator** accordion contains settings for enabling various video test patterns to replace the DM NVX AV-over-IP video output signal.

**NOTE:** The **Test Pattern Generator** accordion is only available when the device is set to **Transmitter** mode.



To set a test pattern:

1. Use the **Test Pattern** drop-down to select an available pattern from among **Off**, **SMPTE ColorBars**, **Black**, **White**, **Vertical Lines**, **Grid**, **Color Bars**, **Gray Gradient**, **RGB Gradient**, and **Frequency Adjust**. Refer to the table below for a reference of each pattern.
2. Use the **Resolution** drop-down to select a resolution for the selected test pattern.

#### Available Test Patterns

**SMPTE ColorBars**

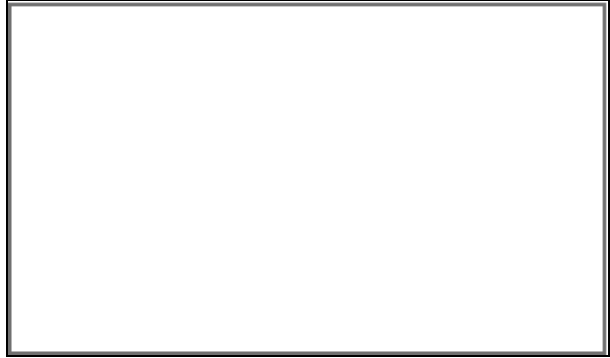


**Black**



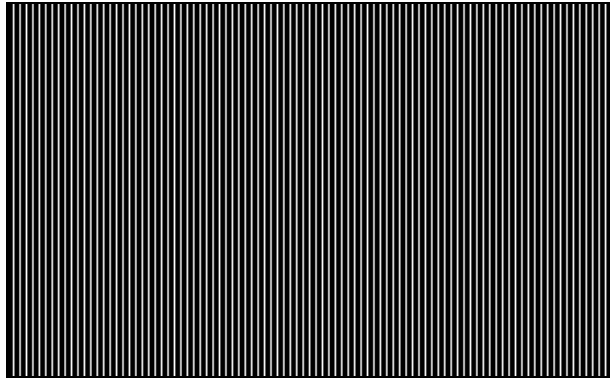
---

**White**



---

**Vertical Lines**



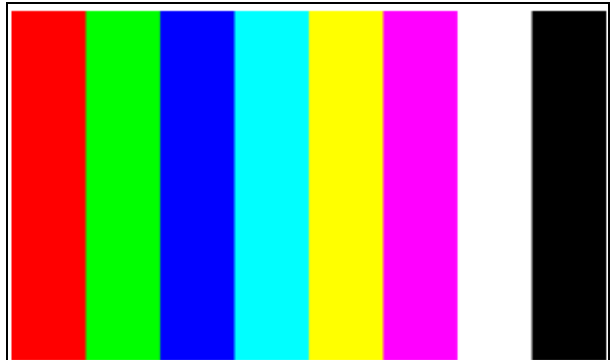
---

**Grid**



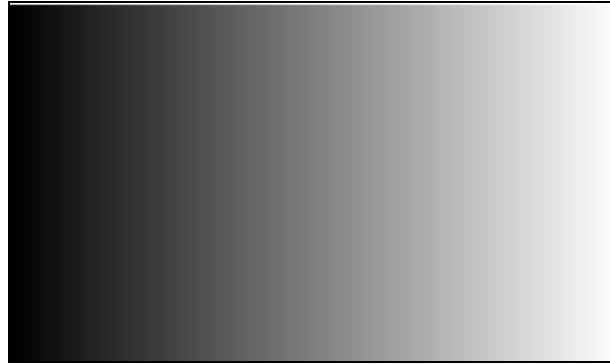
---

**Color Bars**



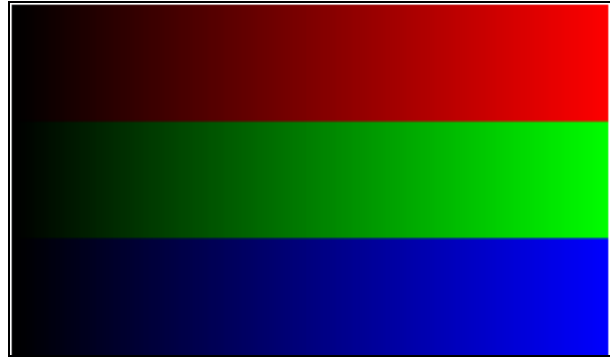
---

**Gray Gradient**



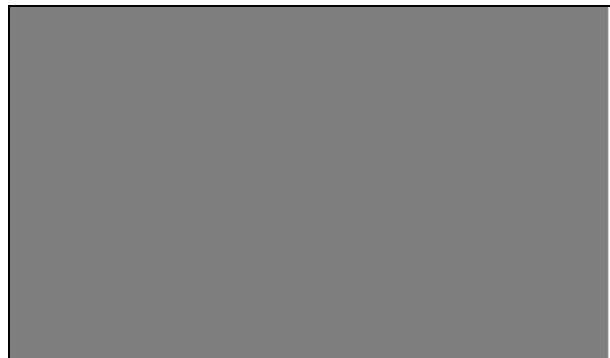
---

**RGB Gradient**



---

**Frequency Adjust**

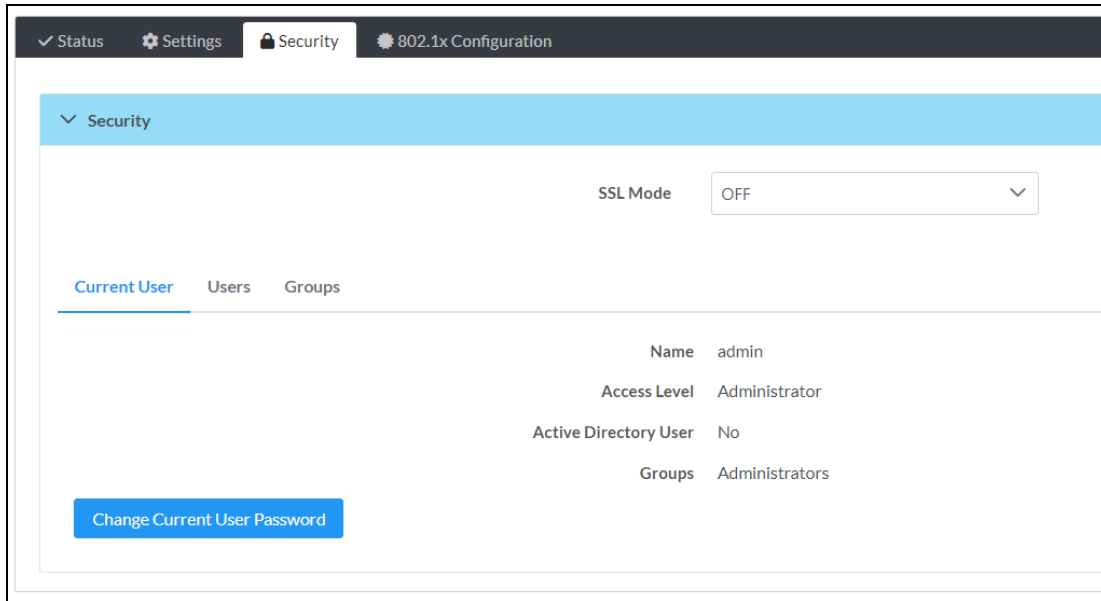


# Security

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

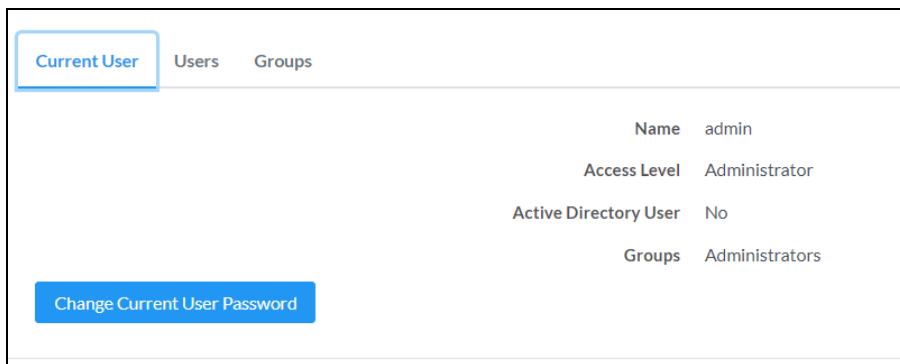
Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM NVX device functions. By default, security is disabled.



Select **Encrypt and Validate**, **Encrypt**, or **OFF** from the **SSL Mode** drop-down menu to specify whether to use encryption. By default, **SSL Mode** is set to **OFF**.

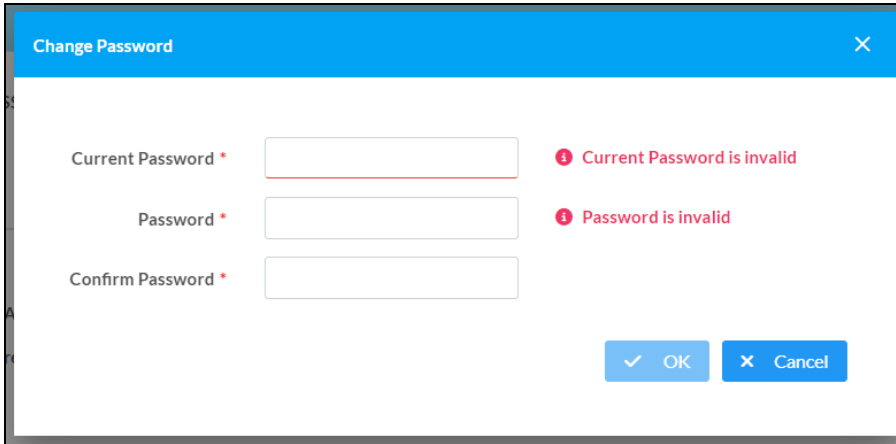
## Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



To change the password for the current user account:

1. Select **Change Current User Password**.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.

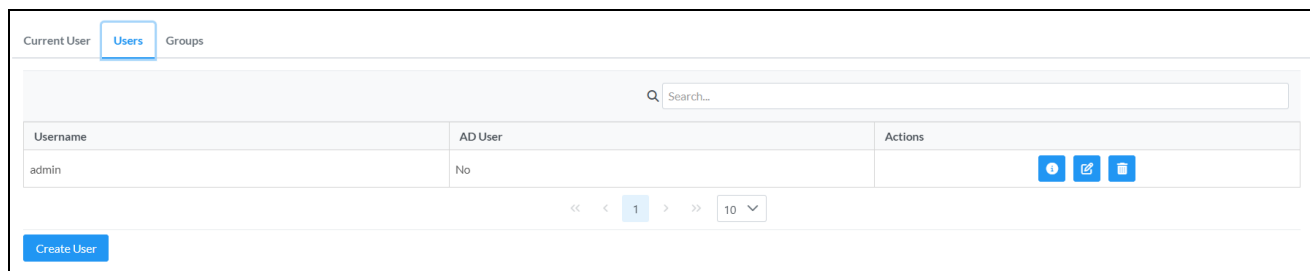


The image shows a 'Change Password' dialog box with a blue header and a white body. It contains three input fields: 'Current Password \*', 'Password \*', and 'Confirm Password \*'. Each field has a red error message to its right: 'Current Password is invalid', 'Password is invalid', and 'Confirm Password is invalid'. At the bottom right, there are two buttons: 'OK' (with a checkmark icon) and 'Cancel' (with an 'X' icon).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



The image shows a web interface for managing users. At the top, there are tabs for 'Current User', 'Users', and 'Groups'. Below the tabs is a search bar with the placeholder text 'Search...'. Underneath the search bar is a table with the following columns: 'Username', 'AD User', and 'Actions'. The table contains one row with the username 'admin' and 'No' in the 'AD User' column. The 'Actions' column for the 'admin' row contains three icons: an information icon (i), an edit icon (pencil), and a delete icon (trash). Below the table is a pagination control showing '<< < 1 > >>' and a dropdown menu set to '10'. At the bottom left, there is a 'Create User' button.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

- **Username:** Displays the name of the user.
- **AD User:** Displays whether the user requires authentication using Active Directory.

Select the information icon  in the **Actions** column to view detailed user information, or select the delete icon  to delete a user.

To create a new user, select **Create User**.

## Create a New Local User

To create a new local user:

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
  - c. Assign the access level by selecting one or more groups from the **Groups** drop-down list.

**NOTE:** Make sure that the **Active Directory User** toggle is set to the left (disabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Grant Access to an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM NVX device, or add the Active Directory group(s) that they are a member of to the DM NVX device. Refer to [Grant Access to an Active Directory Group on page 503](#) for steps on granting access to a group.

To grant access to an Active Directory user directly:

1. Select **Create User**.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Select one or more groups from the **Groups** drop-down list.


**NOTE:** Make sure that the **Active Directory User** toggle is set to the right (enabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

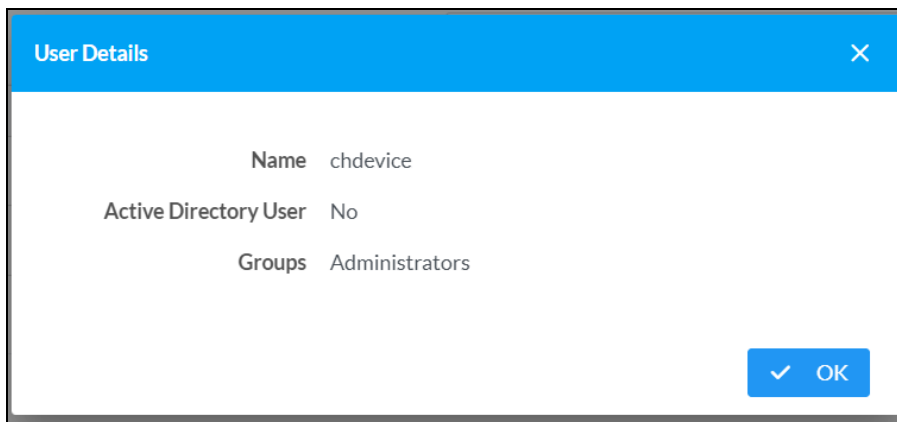
## Delete a User

To delete a user, select the trashcan icon  in the **Actions** column. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

## View User Details

Select the information icon  in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.






The fields displayed in the **User Details** window are:

- **Name:** Displays the name of the selected user.
- **Active Directory User:** Displays whether the user is an Active Directory user.
- **Group:** Displays group(s) the selected user is part of.

Select **OK** to close the **User Details** window and return to the **Users** tab.

## Update User Details

To update the details for an existing user:

1. Select the edit icon  in the **Actions** column to update information for the selected user.
2. Set the **Active Directory User** toggle to the right if the user is an Active Directory user, or to the left if the user is not.
3. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
4. Select one or more groups to assign the user to from the **Groups** drop-down list. Deselect any groups to remove the user from those groups.

**NOTE:** After a user is removed from a group, they lose any access rights associated with that group.

5. Select **OK** to save or select **Cancel** to cancel the changes.

Update User
✕

Name \* username

Active Directory User

Password \*  ❗ Password is invalid

Confirm Password \*

Groups \* Administrators ▼

**NOTE:** The **Name** field is a read-only field that displays the username for the selected user. To change a username, the user must be deleted and a new user must be added.

## Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.

Current User
Users
Groups

Group Name	AD Group	Access Level	Actions
Administrators	No	Administrator	<input type="button" value="ⓘ"/> <input type="button" value="🗑️"/>
Connects	No	Connect	<input type="button" value="ⓘ"/> <input type="button" value="🗑️"/>
Operators	No	Operator	<input type="button" value="ⓘ"/> <input type="button" value="🗑️"/>
Programmers	No	Programmer	<input type="button" value="ⓘ"/> <input type="button" value="🗑️"/>
Users	No	User	<input type="button" value="ⓘ"/> <input type="button" value="🗑️"/>

<< < 1 > >>



10 ▼

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **AD Group:** Displays whether the group requires authentication using Active Directory.
- **Access Level:** Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the information icon  in the **Actions** column to view detailed group information, or select the delete icon  to delete a group.

Select **Create Group** in the **Groups** tab to create new group.

## Create a Local Group

To create a local group:

1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the left (disabled).

3. Select **OK** to save. Select **Cancel** to cancel the changes.

## Grant Access to an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing Active Directory group.

Once the group is added, all members of that group will have access to the DM NVX device.

To grant access to an Active Directory group:

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
  - a. Enter the group name in the **Name** field (for example, "Engineering Group").


**NOTE:** Group names are case sensitive, and a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the right (enabled).


4. Select **OK** to save. Select **Cancel** to cancel the changes.

## Delete a Group

Select the trashcan icon  in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

## View Group Details

Select the information icon  in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group:

- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and return to the **Groups** tab.

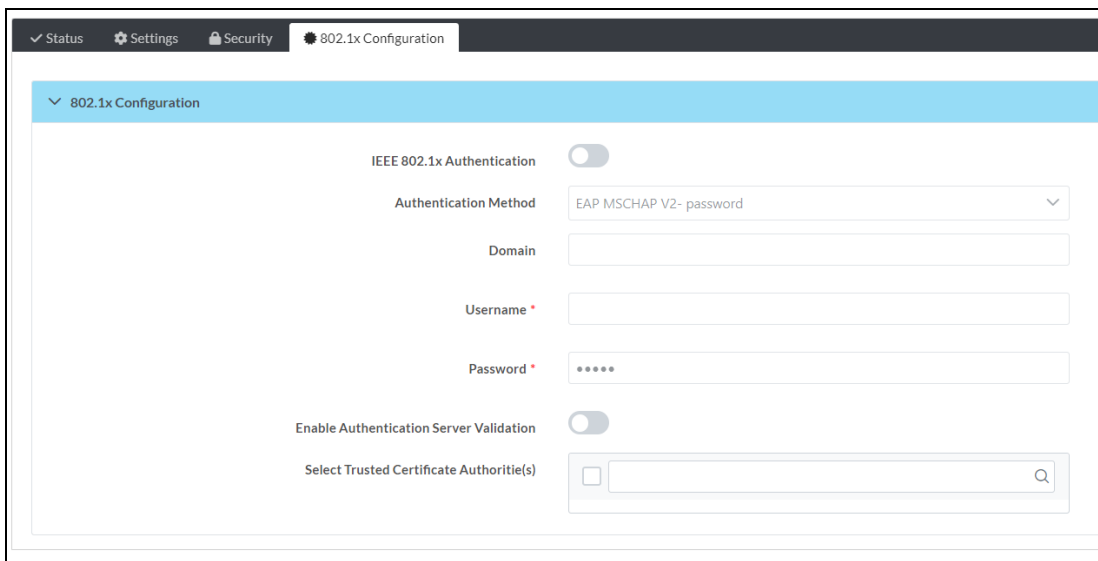
# 802.1X Configuration

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-384
- DM-NVX-384C

DM NVX devices have built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs, relying on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

The **802.1X Configuration** page can be accessed at any time by selecting the **802.1X Configuration** tab of the interface.



The screenshot shows the 802.1X Configuration page in a web interface. The page has a dark header with navigation tabs: Status, Settings, Security, and 802.1X Configuration. Below the header, there is a blue bar with a dropdown arrow and the text '802.1X Configuration'. The main content area contains the following configuration options:

- IEEE 802.1X Authentication:** A toggle switch that is currently turned off.
- Authentication Method:** A dropdown menu with 'EAP MSCHAP V2- password' selected.
- Domain:** An empty text input field.
- Username \*:** An empty text input field.
- Password \*:** A text input field with masked characters (dots).
- Enable Authentication Server Validation:** A toggle switch that is currently turned off.
- Select Trusted Certificate Authoritie(s):** A search input field with a magnifying glass icon.

## Configure the Device for 802.1X Authentication

To configure the DM NVX device for 802.1X Authentication:

1. Set the **IEEE 802.1X Authentication** toggle to the right. This will enable all options on the 802.1X dialog.
2. Select an **Authentication Method**: Choose between **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.

3. Do one of the following:
  - a. If **EAP-TLS Certificate** was selected: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
  - b. If EAP-MSCHAP V2 Password was selected: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields, respectively. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded onto the DM NVX device.

Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu. Refer to [Action on page 433](#) for more information on the **Manage Certificates** function.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and reboot it. Select **Revert** to cancel any changes.

# Configuration (DM-NVX-D30, E30, and E760 Models)

**NOTE:** This section applies to the following models:

- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

## Web Interface Configuration

The web interface of a DM NVX AV-over-IP device allows for the viewing of status information as well as the configuration of local device settings.

### Access the Web Interface

To access the web interface, refer to either of the following:

- [Access the Web Interface with a Web Browser on page 508](#)
- [Access the Web Interface with the Crestron Toolbox™ Application on page 509](#)

The web interface runs in a web browser. The following web browser versions are supported:

#### Operating System and Supported Web Browsers

OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

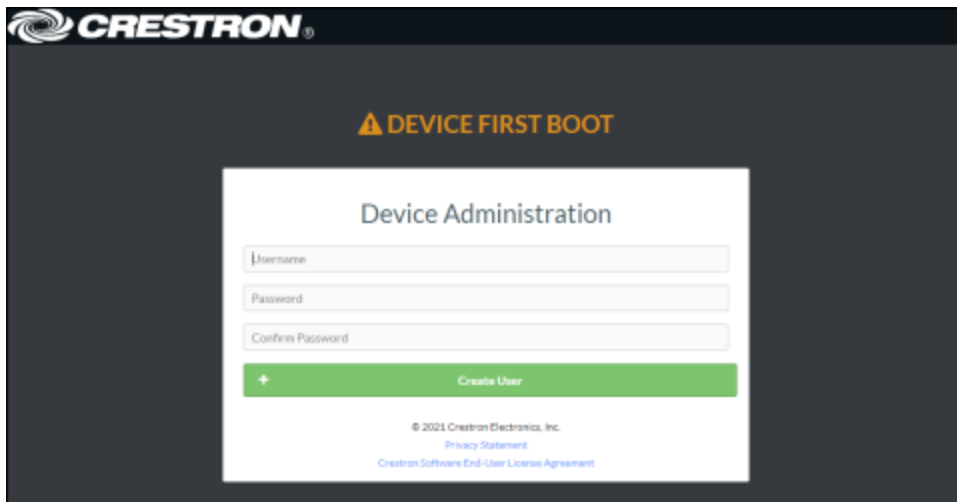
## Access the Web Interface with a Web Browser

To access the web interface:

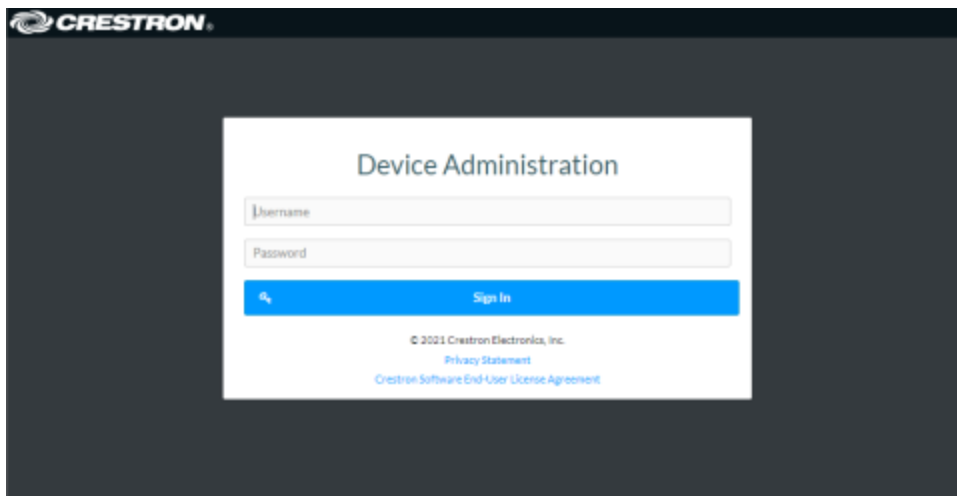
1. Enter the IP address of the DM NVX device into a web browser.

**NOTE:** To obtain the IP address, use the Device Discovery Tool utility in Crestron Toolbox™ software or an IP scanner application.

2. If accessing the device for the first time, a prompt to create an administrator account will be displayed along with a **DEVICE FIRST BOOT** message. To create the first admin account:
  - a. Enter a username in the **Username** field.
  - b. Enter a password in the **Password** field.
  - c. Re-enter the same password in the **Confirm Password** field.



- d. Select **Create User**. A new **Device Administration** page appears with an option to **Sign In** instead of **Create User**.




3. Enter the username in the **Username** field.



4. Enter the password in the **Password** field.
5. Select **Sign In**.

## Access the Web Interface with the Crestron Toolbox™ Application

To access the web interface by opening a web browser from the Crestron Toolbox™ application:

1. Open the Crestron Toolbox application.
2. Select **Device Discovery Tool** from the **Tools** menu or select the Device Discovery Tool icon  in the toolbar. Once the utility loads, the DM NVX device will be discovered on the network and listed in the device list on the left side of the screen. The device's host name, IP address, and firmware version are displayed.

**NOTE:** If there is security software running on the computer, a security alert might be displayed when the Crestron Toolbox application attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. Select the device from the discovered devices list.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

## Action

**NOTE:** Unless otherwise noted, this section applies to the following models:

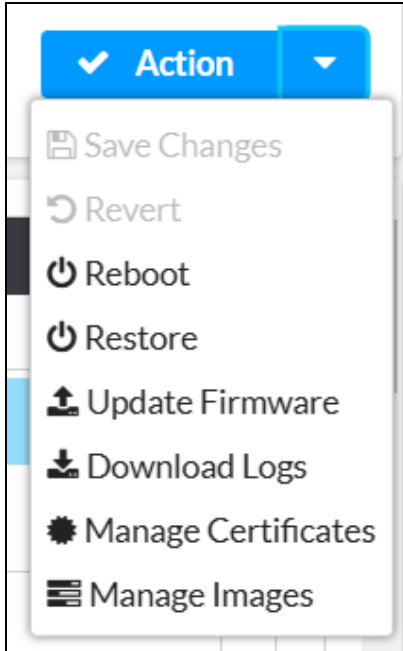
- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

For brevity, the DM-NVX-D30 and DM-NVX-D30C are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Action** drop-down menu is displayed at the top right side of the web interface and provides quick access to these common device functions:

- [Save Changes on page 511](#)
- [Revert on page 511](#)
- [Reboot on page 511](#)
- [Restore on page 511](#)
- [Update Firmware on page 512](#)
- [Download Logs on page 513](#)
- [Manage Certificates on page 513](#)
- [Manage Images \(D Models Only\) on page 514](#)
- [Manage EDIDs \(E Models Only\) on page 516](#)

## Action Menu (DM-NVX-D30 Shown)



### Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

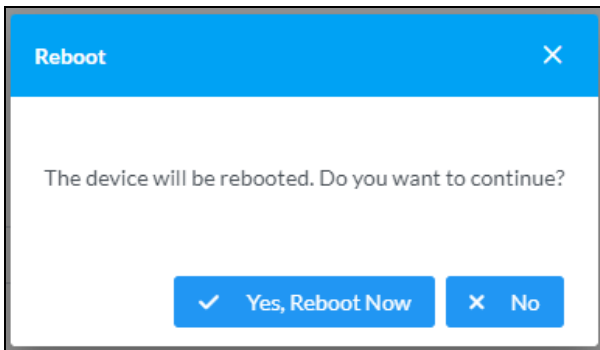
### Revert

Select **Revert** to revert the device back to the last saved configuration.

### Reboot

Certain changes to the settings may require a reboot to take effect. To reboot the device:

1. Select **Reboot** in the **Action** menu. The **Reboot** confirmation message box appears.



2. Select **Yes, Reboot Now** to reboot the device. The **Reboot** status message box appears. Wait for the device reboot to complete before attempting to reconnect to the web interface. Alternatively, select **No** to cancel the reboot operation.

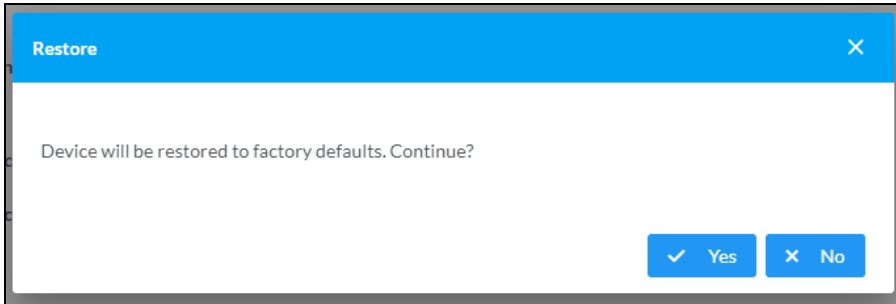
### Restore

The DM NVX device can be restored to factory default settings from the **Action** menu.

**NOTE:** The **Restore** procedure will wipe all settings from the device, including network settings. If a static IP address is set, restoring the device to factory default settings will clear this address and DHCP will be enabled instead.

To restore the device to factory defaults:

1. Select **Restore** in the **Action** menu. The **Restore** confirmation message box appears.



2. Select **Yes** to restore the device to factory default settings. Select **No** to cancel the restore operation. When **Yes** is selected, the **Restore** status message box appears. Wait for the device restore to complete before attempting to reconnect to the web interface.

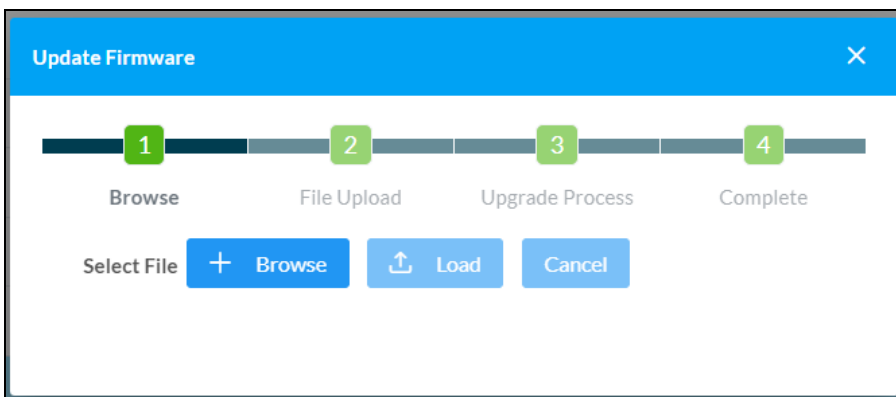
**NOTE:** Once the device is restored, it may have a new IP address. If reconnecting to the original address does not work, use the Device Discovery Tool in Crestron Toolbox software or an IP scanner application to find the device's new IP address.

If the web interface is not accessible, the device can also be restored to factory default settings via a hardware-based procedure (refer to [DM-NVX-D30 and DM-NVX-E30 Installation on page 301](#) or [DM-NVX-E760 Installation on page 308](#)). Card-based DM NVX devices can also be restored from the front panel menu of the DMF-CI-8.

## Update Firmware

To update the firmware of the device:

1. Select **Update Firmware** in the **Action** menu.
2. In the **Update Firmware** window that appears, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Update Firmware** window.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The firmware update is now complete, and the web interface will return to the main log-in page.

## Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

## Manage Certificates

Select **Manage Certificates** in the **Action** menu to open the **Manage Certificates** window. Use this window to add or remove certificates used in 802.1x authentication and other protected network functions.

The screenshot shows the 'Manage Certificates' window with a blue header and a close button. Below the header are tabs for 'Root', 'Intermediate', 'Machine', and 'Web Server'. A search bar is located above a table of certificates. The table has three columns: 'Name', 'Expiry Date', and 'Actions'. Each row in the table includes a blue trash icon in the 'Actions' column. Below the table is a pagination control showing page 1 of 5. At the bottom left, there is a blue button labeled 'Add Root Certificate'.

Name	Expiry Date	Actions
AAA Certificate Services	Dec 31 23:59:59 2028	
AC RAIZ FNMT-RCM	Jan 1 00:00:00 2030	
AC RAIZ FNMT-RCM SERVIDORES SEGUROS	Dec 20 09:37:33 2043	
ACCVRAIZ1	Dec 31 09:37:37 2030	
Actalis Authentication Root CA	Sep 22 11:22:02 2030	
AffirmTrust Commercial	Dec 31 14:06:06 2030	
AffirmTrust Networking	Dec 31 14:08:24 2030	

The following certificate tabs are available in the **Manage Certificates** window:

- **Root:** The Root certificate is used by the DM NVX device to validate the network's authentication server. The device has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate:** The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine:** The Machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM NVX device. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1x, only one machine certificate can reside on the device.
- **Web Server:** The Web Server certificate is a digital file that contains information about the identity of the web server.

## Add Certificates

To add a certificate:


1. Select the corresponding certificate tab.
2. Select **Add [Type] Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

**NOTE:** If the selected certificate is a machine certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list in the **Manage Certificates** window, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

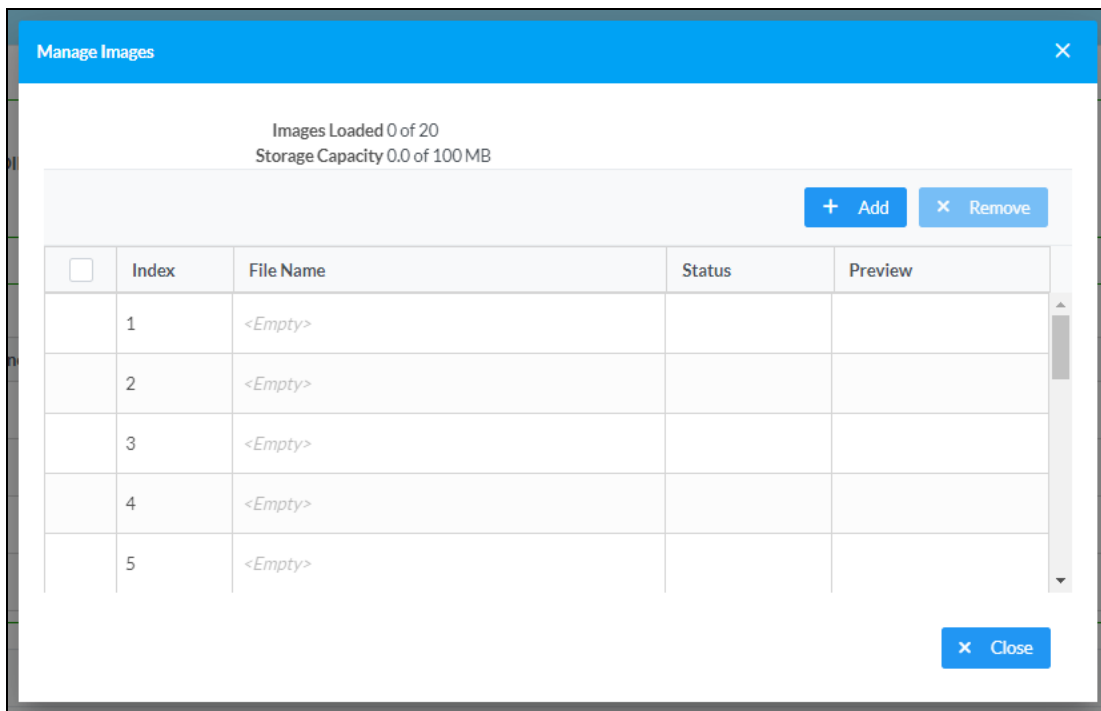
## Delete Certificates

To delete a certificate:

1. Select the corresponding certificate tab.
2. Select the trashcan icon  in the **Actions** column and the row of the certificate to be deleted.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.

## Manage Images (D Models Only)

Select **Manage Images** in the **Action** menu to open the **Manage Images** window. Use this window to add or remove images that can be displayed as backgrounds for the on-screen display feature of the DM NVX device.



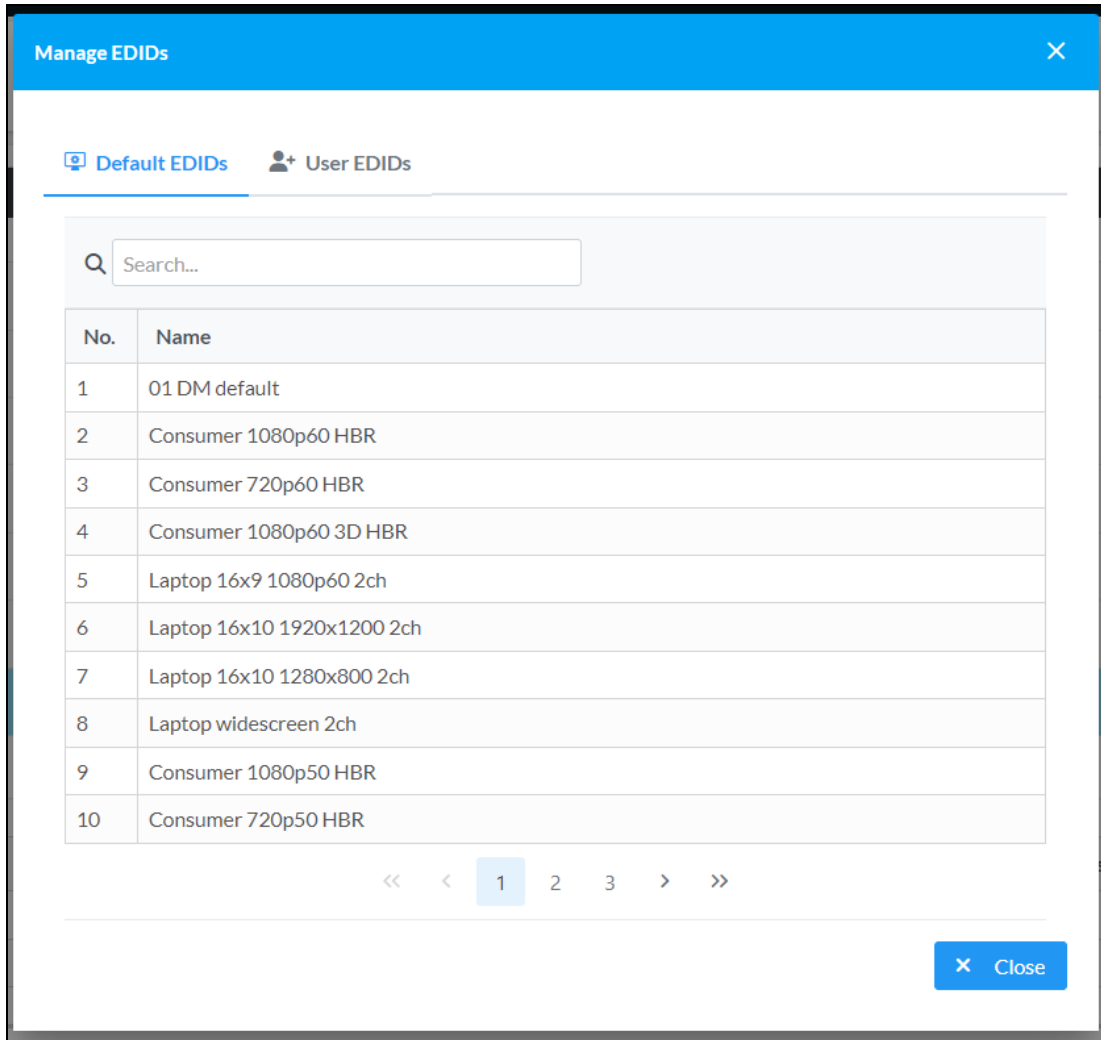
To add an image:

1. Select **+ Add**. A **File Upload** window appears.
2. Select **+ Browse**. Locate the desired .jpeg, .jpg, or .png image file, then select **Upload** to upload it to the DM NVX device. The uploaded image will now appear in the **Manage Images** table with a preview and a **Ready** status message. Refer to the **Outputs** heading under [Settings on page 525](#) for information on setting a background image.

To delete an image, select its entry in the table then select **X Remove**.

## Manage EDIDs (E Models Only)

Select **Manage EDIDs** in the **Action** menu to open the **Manage EDIDs** window. Use this window to add, remove, or browse which EDIDs are available for the AV inputs of the DM NVX device.



The screenshot shows the 'Manage EDIDs' window with a blue header and a close button. Below the header are two tabs: 'Default EDIDs' (selected) and 'User EDIDs'. A search bar is located above a table of EDIDs. The table has two columns: 'No.' and 'Name'. Below the table is a pagination control showing page 1 of 3, and a 'Close' button in the bottom right corner.

No.	Name
1	01 DM default
2	Consumer 1080p60 HBR
3	Consumer 720p60 HBR
4	Consumer 1080p60 3D HBR
5	Laptop 16x9 1080p60 2ch
6	Laptop 16x10 1920x1200 2ch
7	Laptop 16x10 1280x800 2ch
8	Laptop widescreen 2ch
9	Consumer 1080p50 HBR
10	Consumer 720p50 HBR

The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM NVX device as part of the firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.



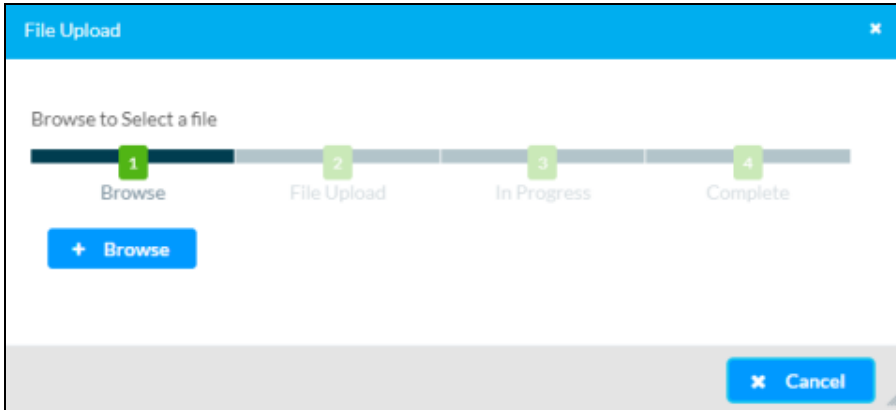
The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**.

The screenshot shows a window titled "Manage EDIDs" with a close button (X) in the top right corner. Below the title bar, there are two tabs: "Default EDIDs" and "User EDIDs". The "User EDIDs" tab is selected and highlighted with a blue border. Below the tabs, there is a search bar with a magnifying glass icon and the text "Search...". To the right of the search bar is a blue button with a plus sign and the text "Add EDID". Below the search bar is a table with three columns: "No.", "Name", and "Actions". The table is currently empty, displaying the text "No records found" in the center. Below the table is a pagination control with the following elements: a double left arrow, a single left arrow, a box containing the number "1", a single right arrow, and a double right arrow. At the bottom right of the window is a blue button with a close icon (X) and the text "Close".

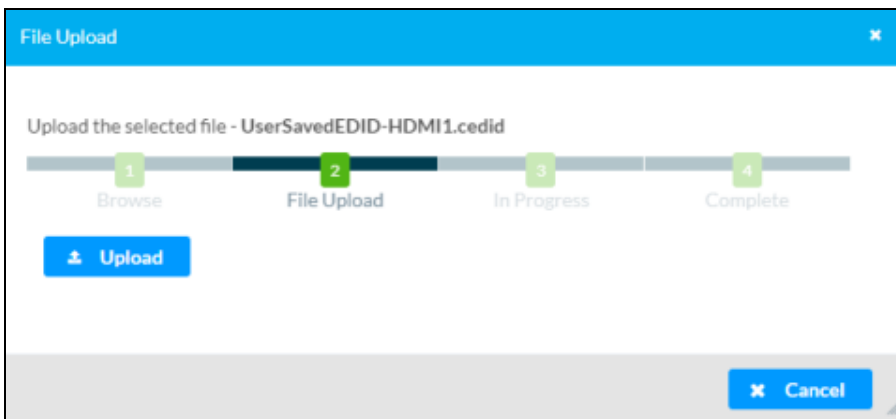
To add a **User EDID** file:

1. Select **+ Add EDID** at the top right of the table. The **File Upload** screen will appear.
2. Select **+ Browse**. Locate the desired .cedid file, then select **Upload** to upload it to the DM NVX device.

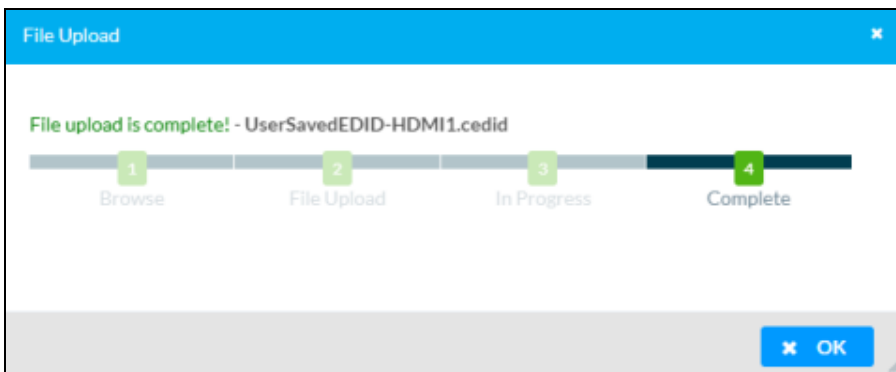
**Browse for and select a .cedid file**



**Upload the selected file**



**Wait for the upload to complete, then select OK**



3. Select **OK** to return to the **Manage EDIDs** window. The uploaded User EDID is now displayed in the table.

To remove a **User EDID** file, select **Delete** in its table row.

# Status

**NOTE:** Unless otherwise noted, this section applies to the following models:

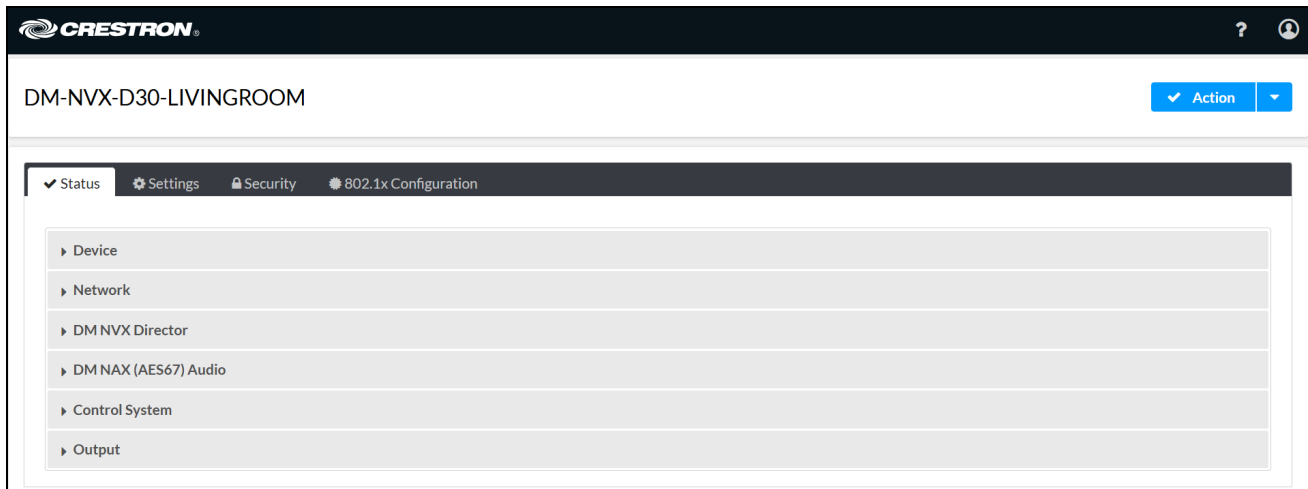
- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

For brevity, the DM-NVX-D30 and DM-NVX-D30C are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Status** page is the first page displayed when opening the interface of the DM NVX device. It displays general information about the device (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**), and the current status of the connectors on the device.

The **Status** page can be accessed at any time by selecting the **Status** tab of the interface.

## Status Page (DM-NVX-D30 Shown)

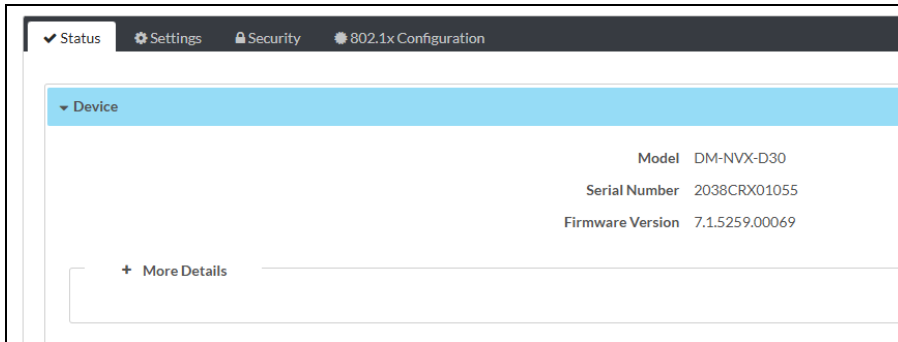


Information displayed on the **Status** page is organized into different sections:

- [Device on page 520](#)
- [Network on page 520](#)
- [DM NVX Director on page 521](#)
- [DM NAX \(AES67\) Audio on page 521](#)
- [Control System on page 523](#)
- [Output \(D Models Only\) on page 523](#)
- [Input \(E Models Only\) on page 524](#)

## Device

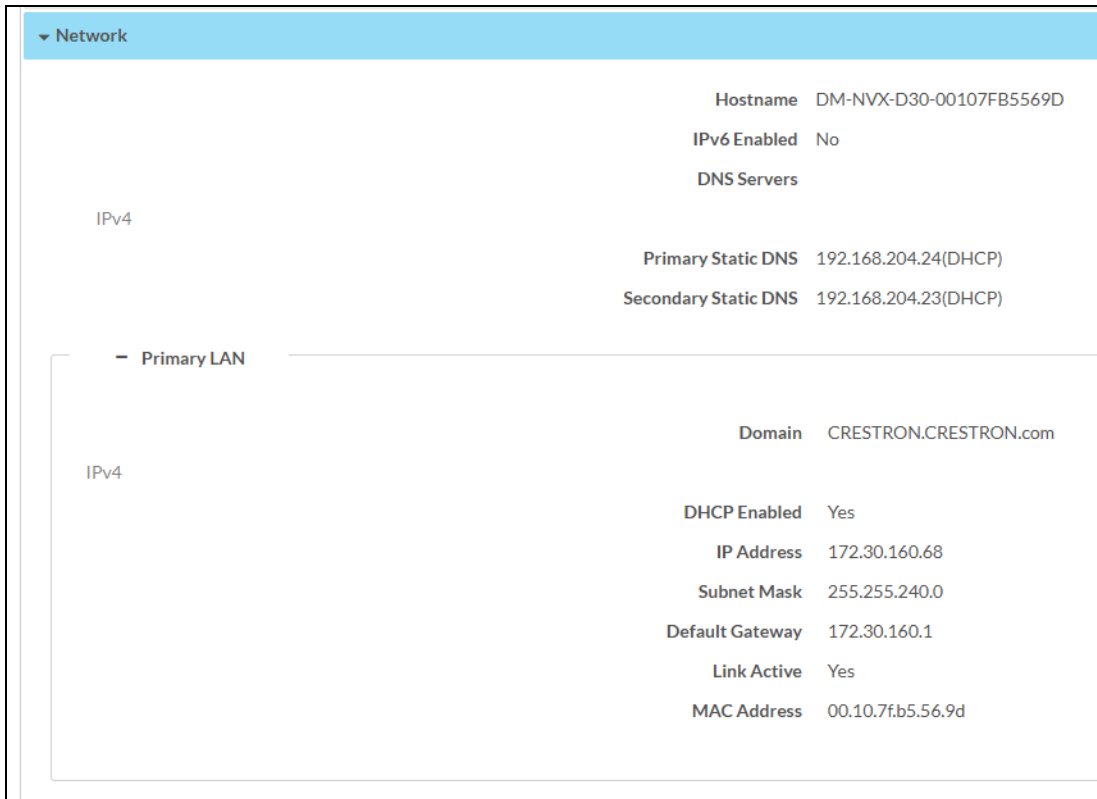
The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM NVX device.



Select **+ More Details** to review additional information about the device.

## Network

The **Network** accordion displays network-related information about the device, including the **Hostname**, **Domain Name**, and **DNS Servers**.



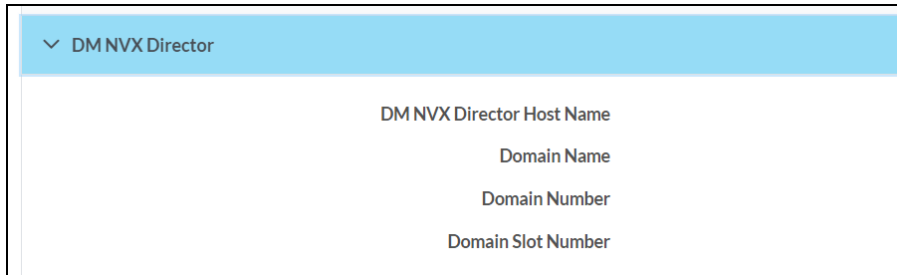
By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-D30-00107FB5569D.

Select **+ Primary LAN** to display additional network information. If **+ Primary LAN** is selected, select **- Primary LAN** to collapse the section.

## DM NVX Director

The **DM NVX Director** accordion displays the details of the DM NVX Director switching appliance to which the DM NVX device is claimed.

**NOTE:** If the DM NVX device has not been claimed by a DM NVX Director switching appliance, all fields in this section will be empty.



- **DM NVX Director Host Name:** Displays the host name of the claiming DM NVX Director switching appliance.
- **Domain Name:** Displays the name of the DM NVX Director domain to which the encoder or decoder device belongs.
- **Domain Number:** Displays the number of the DM NVX Director domain to which the encoder or decoder device belongs.
- **Domain Slot Number:** Displays the slot number within the DM NVX Director that refers to this specific encoder or decoder device.

## DM NAX (AES67) Audio

The **DM NAX (AES67) Audio** accordion displays information regarding the **DM NAX (AES67) Transmit** and **DM NAX (AES67) Receive** audio-over-IP (AoIP) signals. This accordion varies slightly between D models and E models.

## DM NAX (AES67) Audio Accordion (DM-NVX-E760 Shown)

The screenshot displays the 'DM NAX (AES67) Audio' accordion. It is divided into two sections: 'DM NAX (AES67) Transmit' and 'DM NAX (AES67) Receive'. The Transmit section shows a 'Status' of 'Stream Started', 'DM NAX (AES67) Audio Mode' set to 'Automatic', 'Port' 4570, 'Session Name' 'Stream01c4.42.68.63.4d.74', and 'Multicast Address' 239.239.28.21. The Receive section shows a 'Status' of 'Stream Stopped', 'Port' 4570, and 'Multicast Address' 0.0.0.0.

DM NAX (AES67) Transmit	
Status	Stream Started
DM NAX (AES67) Audio Mode	Automatic
Port	4570
Session Name	Stream01c4.42.68.63.4d.74
Multicast Address	239.239.28.21

DM NAX (AES67) Receive	
Status	Stream Stopped
Port	4570
Multicast Address	0.0.0.0

The **DM NAX (AES67) Audio Mode** field will be under the **DM NAX (AES67) Receive** heading if the device is a decoder (D model) or under the **DM NAX (AES67) Transmit** heading if the device is an encoder (E model). This field displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).

The details displayed for **DM NAX (AES67) Transmit** are:

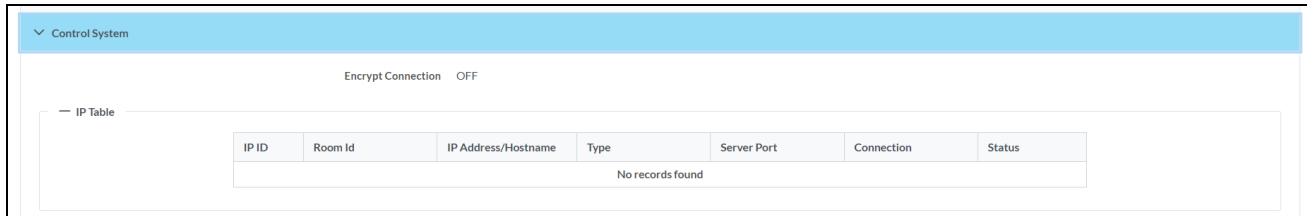
- **Status:** Displays a status message for the transmitting AoIP stream, such as **Stream Stopped**, **Stream Starting**, or **Stream Started**.
- **Port:** Displays the port of the AoIP transmit stream.
- **Session Name:** Displays the session name of the AoIP transmit stream.
- **Multicast Address:** Displays the multicast address of the AoIP transmit stream.

The details displayed for **DM NAX (AES67) Receive** are:

- **Status:** Displays a status message for the AoIP stream receiver, such as **Connecting**, **Stream Stopped**, or **Stream Started**.
- **Port:** Displays the port of the received AoIP stream.
- **Multicast Address:** Displays the multicast address of the received AoIP stream.

## Control System

The **Control System** accordion displays information regarding the connection between the DM NVX device and a control system.

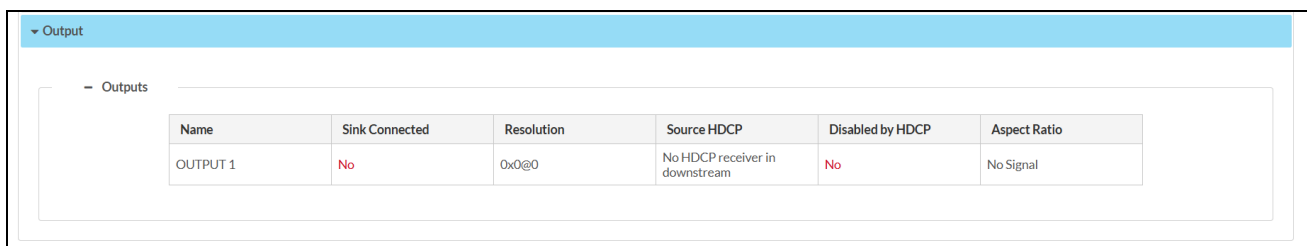


The screenshot shows a web interface for the Control System. At the top, there is a blue header with a dropdown arrow and the text "Control System". Below the header, there is a section for "Encrypt Connection" which is currently set to "OFF". Underneath, there is a section for "IP Table" which contains a table with the following columns: IP ID, Room Id, IP Address/Hostname, Type, Server Port, Connection, and Status. The table is currently empty, with the text "No records found" centered below the column headers.

The displayed fields are:

- **Encrypt Connection:** Displays **ON** if the connection is encrypted or **OFF** if it is not.
- **IP ID:** Displays the IP ID of the DM NVX device in its IP table entry of the control system's IP table.
- **Room ID:** Displays the room ID of the DM NVX device in its IP table entry of the control system's IP table.
- **IP Address/Hostname:** Displays the IP address and host name of the control system.
- **Type:** Always displays **Peer** (this is the only relationship the DM NVX device can have to a control system).
- **Server Port:** Displays the port for the connection between the DM NVX device and the control system.
- **Connection:** Always displays **Gway** (this is the only connection type supported between a DM NVX device and a control system).
- **Status:** Displays either **ONLINE** or **OFFLINE** depending on if the DM NVX device is able to communicate with the control system.

## Output (D Models Only)



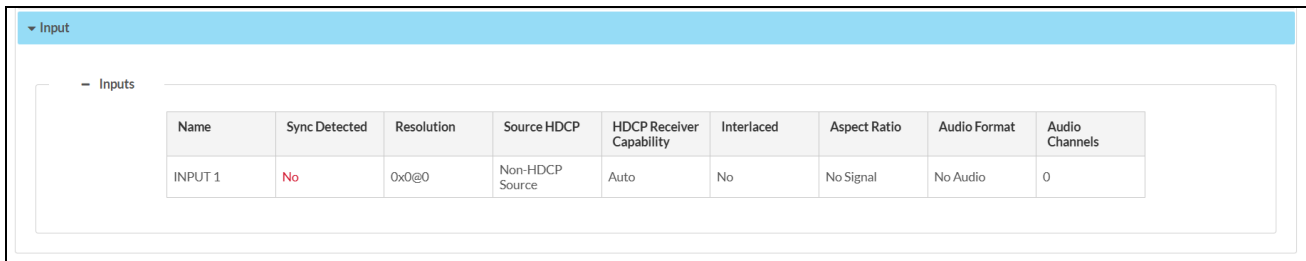
The screenshot shows a web interface for the Output section. At the top, there is a blue header with a dropdown arrow and the text "Output". Below the header, there is a section for "Outputs" which contains a table with the following columns: Name, Sink Connected, Resolution, Source HDCP, Disabled by HDCP, and Aspect Ratio. The table has one row with the following data: Name: OUTPUT 1, Sink Connected: No, Resolution: 0x0@0, Source HDCP: No HDCP receiver in downstream, Disabled by HDCP: No, Aspect Ratio: No Signal.

The displayed fields are:

- **Name:** Displays the name of the output.
- **Sink Connected:** Displays whether a sink (such as a display or projector) is connected to the output (**Yes**) or not (**No**).
- **Resolution:** Displays the current resolution of the video output signal.
- **Source HDCP:** Displays the HDCP level supported by the connected display or projector.
- **Disabled by HDCP:** Displays whether the output is disabled by HDCP (**Yes**) or not (**No**).
- **Aspect Ratio:** Displays the aspect ratio of the video output signal.

## Input (E Models Only)

The **Input** accordion displays status information regarding the input connector of the DM NVX device.



The screenshot shows a software interface with a blue header bar labeled "Input". Below the header, there is a section titled "Inputs" containing a table with the following data:

Name	Sync Detected	Resolution	Source HDCP	HDCP Receiver Capability	Interlaced	Aspect Ratio	Audio Format	Audio Channels
INPUT 1	No	0x0@0	Non-HDCP Source	Auto	No	No Signal	No Audio	0

The displayed fields are:

- **Name:** Displays the name of the input.
- **Sync Detected:** Displays whether sync is detected at the input (**Yes**) or not (**No**).
- **Resolution:** Displays the resolution and refresh rate of the input video signal.
- **Source HDCP:** Displays the HDCP level of the input video signal.
- **HDCP Receiver Capability:** Displays the HDCP capabilities of the DM NVX device.
- **Interlaced:** Displays **Yes** or **No** depending if the input video signal is interlaced or not.
- **Aspect Ratio:** Displays the aspect ratio of the input video signal.
- **Audio Format:** Displays the audio format of the input signal.
- **Audio Channels:** Displays the number of audio channels in the input signal.



# Settings

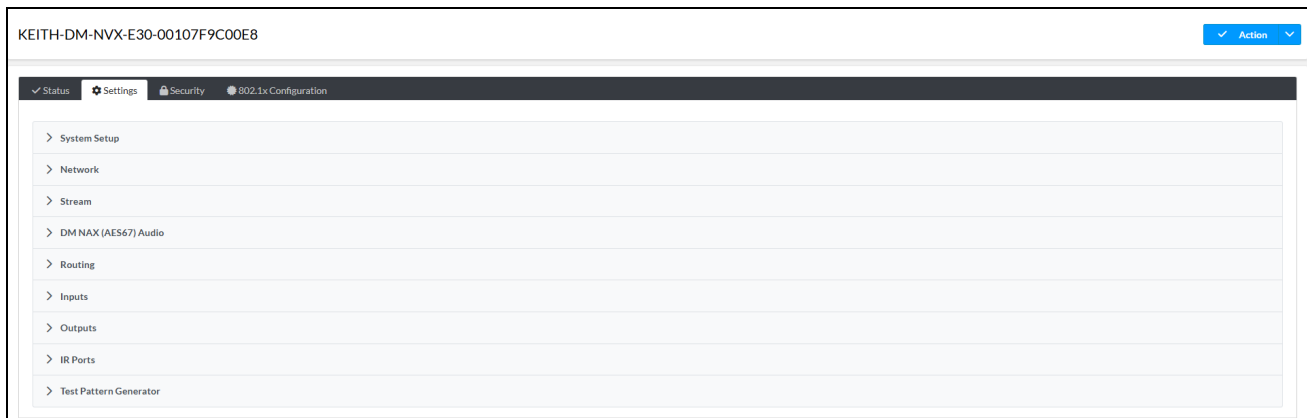
**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

For brevity, the DM-NVX-D30 and DM-NVX-D30C are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Settings** page enables configuration of the DM NVX device's settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the interface.

## Settings Page (DM-NVX-E30 Shown)



**NOTE:** Some settings are specific to the decoder (D models) or encoder (E models) interface. Model requirements are noted in headings below where appropriate.

Settings available on the **Settings** page are organized into different sections:

- [System Setup on page 526](#)
- [Network on page 532](#)
- [Stream on page 533](#)
- [DM NAX \(AES67\) Audio on page 541](#)
- [Routing on page 543](#)
- [Subscriptions \(D Models Only\) on page 545](#)
- [Inputs \(E Models Only\) on page 547](#)
- [Outputs on page 552](#)

- [IR Ports](#) on page 558
- [Port Selection \(E760 Models Only\)](#) on page 560
- [Test Pattern Generator \(E Models Only\)](#) on page 561

## System Setup

The **System Setup** accordion contains settings for configuration of the following system functions.

The screenshot shows the 'System Setup' configuration page. It features a light blue header with a dropdown arrow and the text 'System Setup'. Below the header are four distinct sections, each with a title and a configuration option:

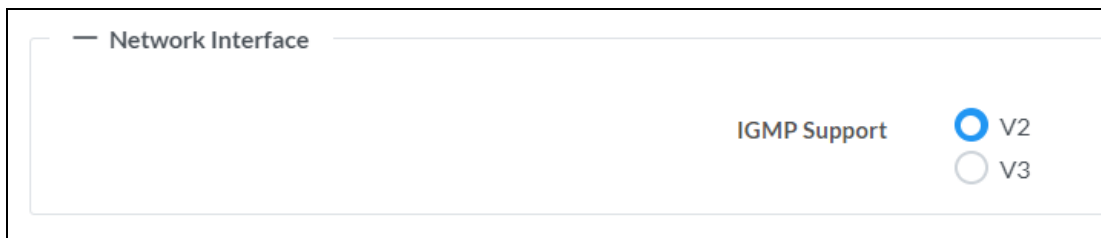
- Network Interface:** Contains the 'IGMP Support' setting, which is a radio button selection. The 'V2' option is selected (indicated by a blue circle), and the 'V3' option is unselected (indicated by a grey circle).
- Device Mode Lock:** Contains the 'Control Lock' setting, which is a toggle switch currently in the 'off' position (grey).
- Cloud Settings:** Contains the 'Cloud Configuration Service Connection' setting, which is a toggle switch currently in the 'on' position (blue).
- Auto Update:** Contains the 'Auto Update' setting, which is a toggle switch currently in the 'on' position (blue).

### Network Interface

The **Network Interface** section provides a choice between IGMPv2 and IGMPv3 operation. Choose the settings that matches the capabilities of the network hardware.

#### NOTES:

- This setting must match on all DM NVX devices in a system to ensure compatibility.
- DM NVX devices are set to IGMPv2 operation by default.
- Crestron recommends leaving DM NVX systems set to IGMPv2 operation unless the network specifically requires IGMPv3.

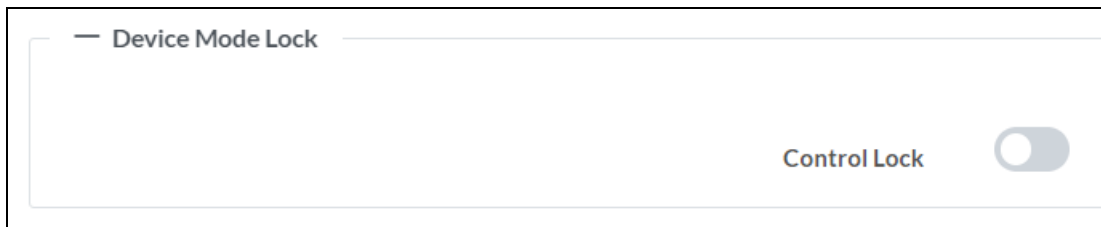


To change the **Network Interface** mode:

1. Select **V2** to set the DM NVX device to IGMPv2 operation, or select **V3** to set the device to IGMPv3 operation.
2. Select **Save Changes**. A prompt will appear to reboot the device.
3. Select **Yes, Reboot Now** to reboot the device into the new **Network Interface** mode.

## Device Mode Lock

The **Device Mode Lock** section provides a toggle for the **Control Lock** feature.

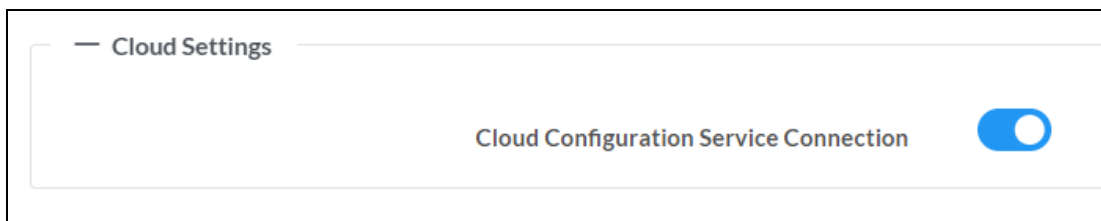


Set the **Control Lock** toggle to the right to lock out the push buttons built in to the DM NVX device.

Set the **Control Lock** toggle to the left to disable the lock, allowing the push buttons to control source routing and device modes.

## Cloud Settings

The Cloud Settings section provides a toggle to enable or disable communication with the Crestron XiO Cloud® platform.

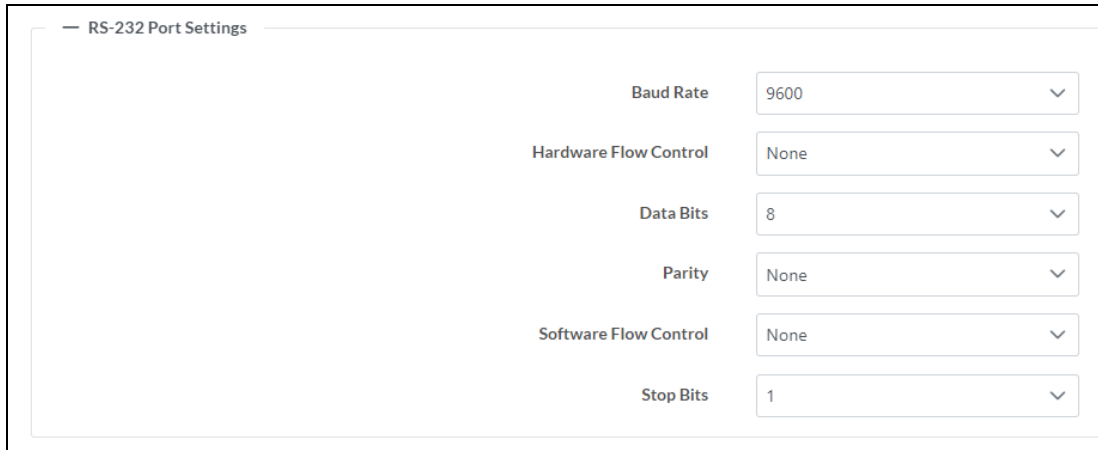


Set the **Cloud Configuration Service Connection** toggle to the right to allow the DM NVX device to communicate with the XiO Cloud platform. Set the toggle to the left to prevent the device from communicating with the XiO Cloud platform.

## RS-232 Port Settings

**NOTE:** This section is not available on card-based models.

Configure the settings for the built-in RS-232 port of the device in the **RS-232 Port Settings** section.



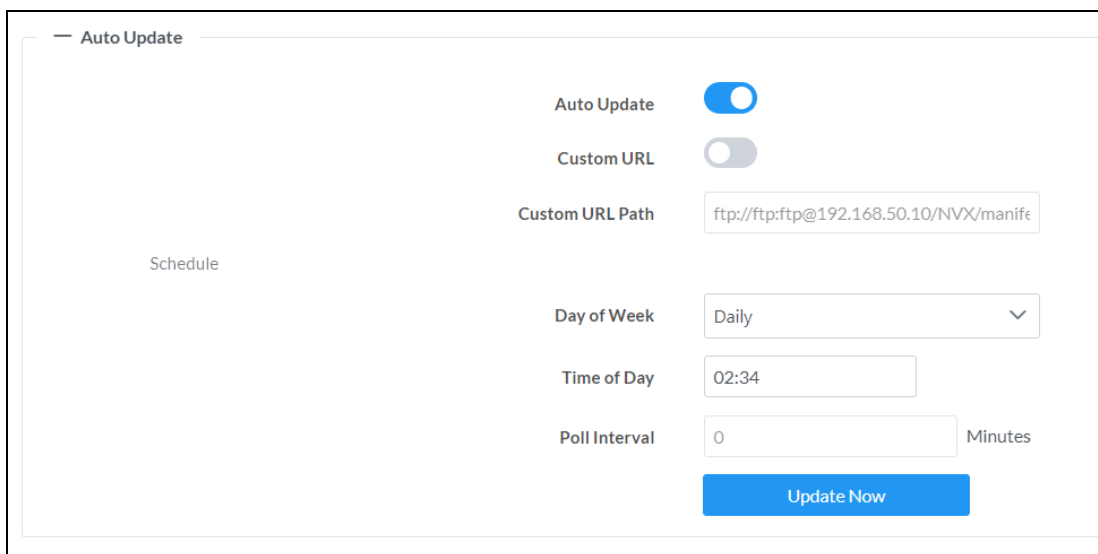
The screenshot shows the 'RS-232 Port Settings' configuration page. It contains several settings, each with a label and a corresponding input field or dropdown menu:

- Baud Rate:** A dropdown menu set to '9600'.
- Hardware Flow Control:** A dropdown menu set to 'None'.
- Data Bits:** A dropdown menu set to '8'.
- Parity:** A dropdown menu set to 'None'.
- Software Flow Control:** A dropdown menu set to 'None'.
- Stop Bits:** A dropdown menu set to '1'.

- **Baud Rate:** Select the baud rate from the drop-down.
- **Hardware Flow Control:** Select the hardware flow control from the drop-down.
- **Data Bits:** Select the number of data bits from the drop-down.
- **Parity:** Select the parity from the drop-down.
- **Software Flow Control:** Select the software flow control from the drop-down.
- **Stop Bits:** Select the number of stop bits from the drop-down.

## Auto Update

The DM NVX device can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



The screenshot shows the 'Auto Update' configuration page. It includes the following settings:

- Auto Update:** A toggle switch that is turned on (blue).
- Custom URL:** A toggle switch that is turned off (grey).
- Custom URL Path:** A text input field containing 'ftp://ftp:ftp@192.168.50.10/NVX/manife'.
- Schedule:** A section containing:
  - Day of Week:** A dropdown menu set to 'Daily'.
  - Time of Day:** A text input field set to '02:34'.
  - Poll Interval:** A text input field set to '0' with the label 'Minutes' to its right.
- Update Now:** A blue button located at the bottom of the settings.

To configure the **Auto Update** feature settings:

1. Set the **Auto Update** toggle to the right to enable the **Auto Update** feature.
2. Define the URL to download the updates by doing either of the following:
  - a. Use the default URL to download the updates from the Crestron server.
  - b. Use a custom URL. Set the **Custom URL** toggle to the right to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
  - a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
  - b. Set the **Poll Interval** by entering a value from 60 to 65535 minutes. A value of 0 disables the **Poll Interval**.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

## Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM NVX device.

— Date/Time

Synchronization

Time Synchronization

[Synchronize Now](#)

NTP Time Servers

<input type="checkbox"/>	Address	Port	Authentication Method	Authentication Key	Key ID
<input type="checkbox"/>	pool.ntp.org	123	None	*****	0

[+ Add](#) [- Remove](#)

Configuration

Time Zone: (UTC-05:00) Eastern Time (US & Can) ▼

Date: 09/30/2024

Time: 07:58

## Synchronization

1. Set the **Time Synchronization** toggle to the right to enable or left to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

## Configuration

1. Open the **Time Zone** drop-down menu to select the applicable time zone.
2. In the **Date** field, enter the current date.

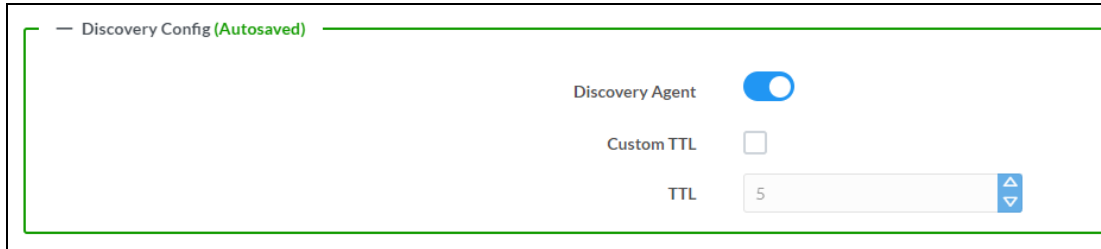
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** drop-down menu to revert to the previous settings without saving.

## Discovery Config

The **Discovery Config** section provides settings to customize how the DM NVX device and its streams can be discovered on the LAN.



Discovery Config (Autosaved)

Discovery Agent

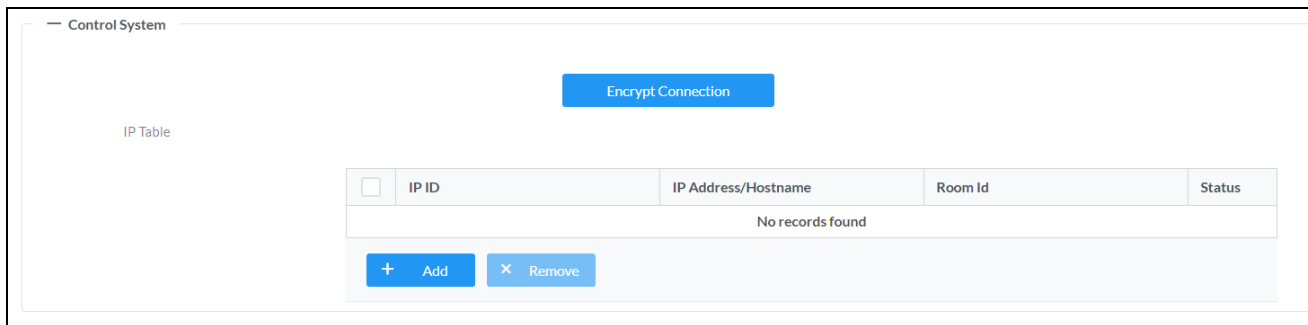
Custom TTL

TTL 5

Set the **Discovery Agent** toggle to the right to allow streams from the device to be discoverable on the network or to the left to prevent network discovery. When **Discovery Agent** is enabled, the streams from the DM NVX device are displayed in the **Available Streams** list of other receivers.

Select the **Custom TTL** option and enter a value in the **TTL** field if a custom Time-to-live (TTL) value is required on the network. The default **TTL** value is 5.

## Control System



Control System

Encrypt Connection

IP Table

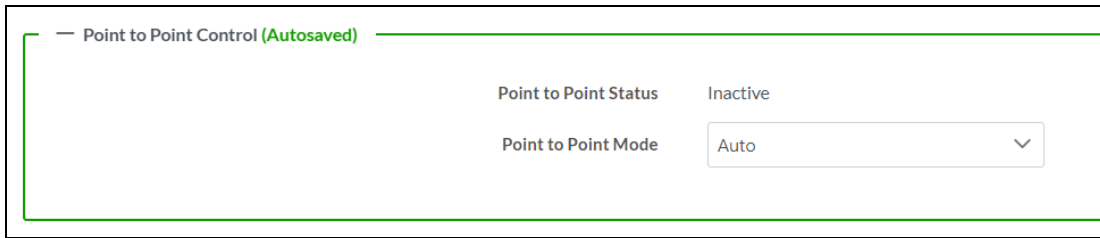
<input type="checkbox"/>	IP ID	IP Address/Hostname	Room Id	Status
No records found				

+ Add x Remove

1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
  - a. Enter a username in the **Control System Username** field.
  - b. Enter a password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
  - a. Enter the Room ID in the **Room ID** field.
  - b. Enter the IP ID of the DM NVX device in the **IP ID** field.
  - c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box appears, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

## Point to Point Control

The **Point to Point Control** section allows enabling or disabling point-to-point streaming of AV-over-IP between this device and another directly-connected DM NVX device without the need for a control system.



The screenshot shows a configuration panel titled "Point to Point Control (Autosaved)". It contains two fields: "Point to Point Status" with a value of "Inactive", and "Point to Point Mode" with a dropdown menu currently set to "Auto".

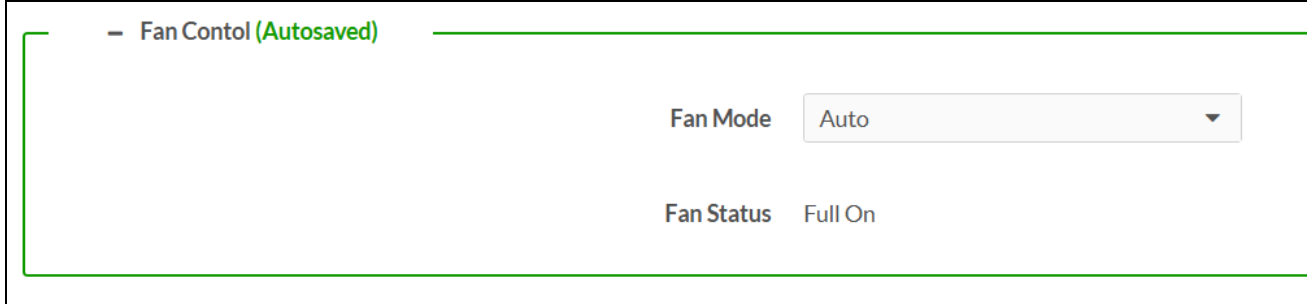
**Point to Point Status** is a read-only field that indicates whether point-to-point mode is **Active** or **Inactive**.

Select an option from the **Point to Point Mode** drop-down:

- **Auto:** (Default setting) Each 1000BASE-T port of the device detects whether it is connected directly to another DM NVX device or to a 1000BASE-T switch. If a direct connection between a DM NVX encoder and decoder is detected, point-to-point streaming is automatically initiated.
- **Disable:** Disables point-to-point streaming.

## Fan Control (DM-NVX-D30 Only)

**NOTE:** This section is not available on card-based models.



The screenshot shows a configuration panel titled "Fan Control (Autosaved)". It contains two fields: "Fan Mode" with a dropdown menu currently set to "Auto", and "Fan Status" with a value of "Full On".

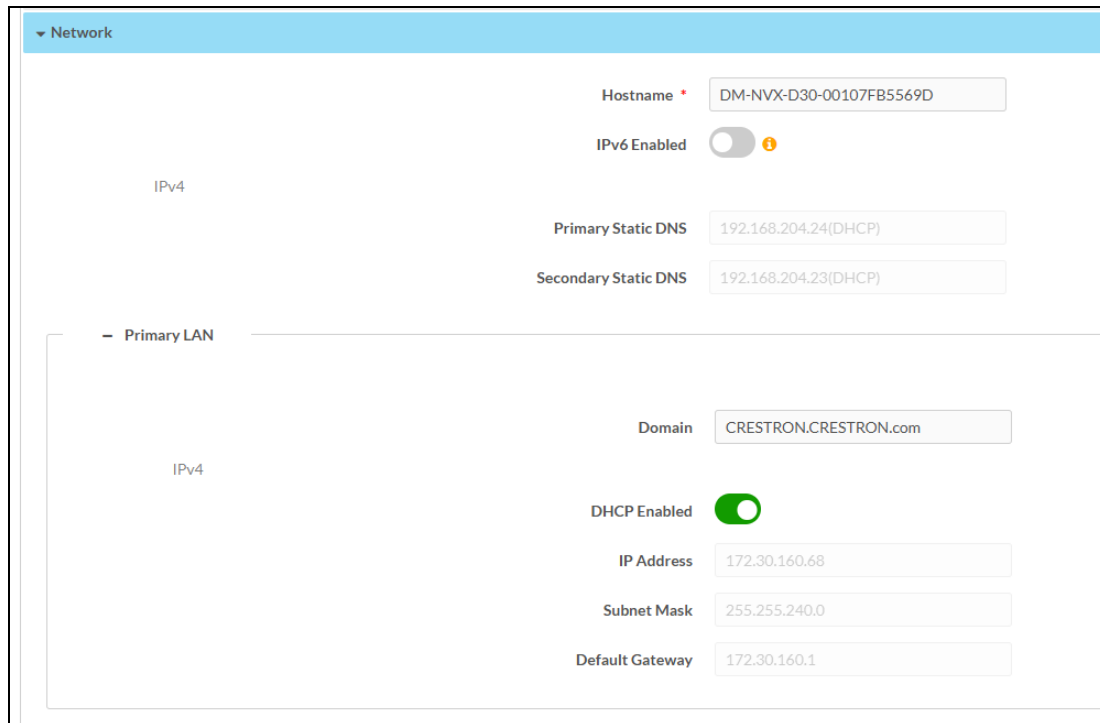
Select an option from the **Fan Mode** drop-down:

- **Auto:** The fan automatically turns on when either of these conditions are met:
  - A video stream is present.
  - The internal temperature of the device exceeds the normal operating range.
- **Always On:** The fan runs continuously regardless of video stream status and internal temperature.

**Fan Status** is a read-only field that will either read **Full On** to indicate that the fan is running or **Off** to indicate that the fan is not running.

## Network

The **Network** accordion contains network-related settings for the DM NVX device, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.



The screenshot shows the Network settings interface. At the top, there is a 'Network' header. Below it, the 'IPv4' section contains the following settings: Hostname (DM-NVX-D30-00107FB5569D), IPv6 Enabled (disabled), Primary Static DNS (192.168.204.24(DHCP)), and Secondary Static DNS (192.168.204.23(DHCP)). The 'Primary LAN' section contains: Domain (CRESTRON.CRESTRON.com), DHCP Enabled (enabled), IP Address (172.30.160.68), Subnet Mask (255.255.240.0), and Default Gateway (172.30.160.1).

**NOTE:** By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-D30-00107FB5569D.

### Primary LAN

The **Primary LAN** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of the Ethernet adapter.

**NOTE:** On the DM-NVX-E760(C), other LAN subheadings appear when the built-in Ethernet ports are given traffic designations via the **Port Selection** feature. Refer to [Port Selection \(E760 Models Only\) on page 560](#) for more information on designating specific traffic to specific Ethernet ports. The same settings are available for the additional LAN subheadings that are available for **Primary LAN**.

Set the **DHCP** toggle to the right to enable **DHCP** or left to disable **DHCP**. This determines whether the IP address of the **Primary LAN** port is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled:** When DHCP is enabled (default setting), the IP address of the Primary LAN port is automatically assigned by a DHCP server on the local area network (LAN).



- **Disabled:** When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS:** Enter a primary DNS IP address.
  - **Secondary Static DNS:** Enter a secondary DNS IP address.
  - **IP Address:** Enter a unique IP address for the Primary LAN port.
  - **Subnet Mask:** Enter the subnet mask that is set on the network connected to the Primary LAN port.
  - **Default Gateway:** Enter the IP address that is to be used as the Primary LAN network's gateway.

To save any new network entries, select **Save Changes**.

## Stream

The settings available under the **Stream** accordion vary depending on whether the device is a decoder (D model) or encoder (E model).

### Stream Settings (D Models)

Sample Stream Settings (DM-NVX-D30 Shown)

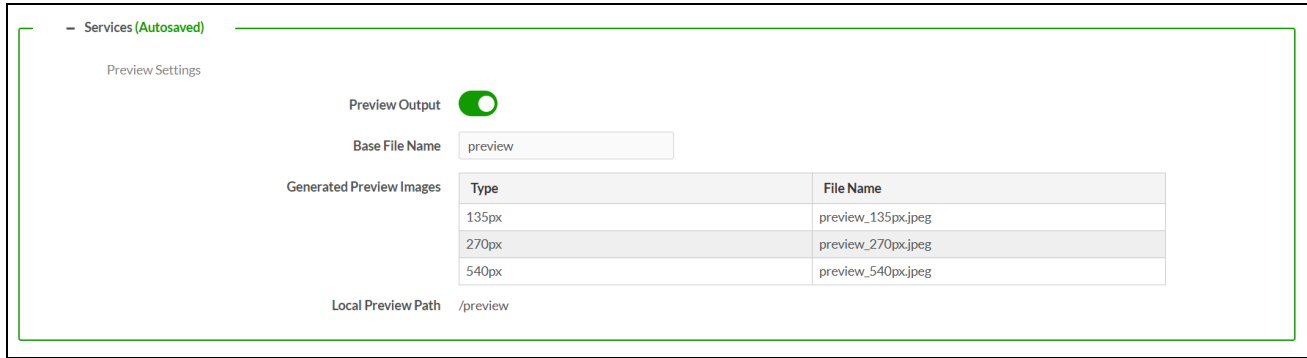
The screenshot displays the 'Stream' settings for a DM-NVX-D30 device. The settings are as follows:

Device Name	Output 18
Stream Location	rtsp://172.30.160.43:554/live.sdp
Multicast Address	239.5.5.38
Status	Stream started
Resolution	
Preview	NO VIDEO

Configure the basic stream settings:

- **Device Name:** Displays the name of the upstream DM NVX device. By default, this will match the hostname.
- **Multicast Address:** Displays the multicast address of the incoming stream.
- **Stream Location:** Displays the network location of the incoming stream.
- **Status:** Displays the status of the network stream (for example, **Connecting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the incoming stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services



The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

## Advanced

The **Advanced** section provides further configuration of the incoming AVoIP stream along with stream statistics.

The screenshot shows a web interface titled "Advanced (Autosaved)". It is divided into two main sections: "Statistics" and "Audio/Video".

**Statistics Section:**

- Auto Initiation:** A toggle switch is currently turned off. Below it are two buttons: a blue "Start" button with a play icon and a grey "Stop" button with a square icon.
- Custom Ports:** A toggle switch is currently turned off.
- RTSP Port:** A dropdown menu showing "554".
- TS Port:** A text input field showing "4570".
- Statistics:** A toggle switch is currently turned on.
- Packets Received:** 0
- Packets Dropped:** 0
- Bitrate:** 0
- Reset Statistics:** A blue button.

**Audio/Video Section:**

- Audio Channels:** 0
- Audio Format:** No Audio
- Aspect Ratio:** No Signal

The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to set a custom RTSP port to connect to an incoming DM NVX stream. Set the toggle to the left to use the default port values (the default RTSP port value is 554).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.

**NOTE:** Valid values for the custom port field range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **TS Port:** Displays the default TS port value (4570).

The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the incoming DM NVX stream:
  - **Packets Received** will display the total number of packets received by the DM NVX device as part of the incoming DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - **Bitrate** will display the current bitrate of the incoming DM NVX stream.
  - Select **Reset Statistics** to set both **Packets Received** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the incoming DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the incoming DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the incoming DM NVX stream.

## Stream Settings (E Models)

### Sample Stream Settings (DM-NVX-E30 Shown)

The screenshot displays the 'Stream' configuration page. It includes the following fields and values:

- Stream Type:** Pixel Perfect Processing (Default)
- Multicast Address:** 238.54.13.22
- Device Name:** KEITH-DM-NVX-E30-00107F9C00
- Stream Location:** (empty)
- Status:** Stream stopped
- Resolution:** (empty)
- Preview:** NO VIDEO

Configure the basic stream settings:

- **Stream Type:** Select either **Pixel Perfect Processing** (if transmitting to other DM NVX 4K60 4:4:4 capable endpoints) or **DM-NVX-D10/D20** (if transmitting to a decoder in the D10/D20/D200 family of DM NVX decoders).
- **Multicast Address:** Sets the multicast address of the outgoing stream.
  - The secondary audio stream from the DM NVX device will consume the next multicast address above the value entered here. For example, a **Multicast Address** of 239.10.0.1 will result in a secondary audio stream address of 239.10.0.2.

**CAUTION:** Ensure the value entered for **Multicast Address** is unique on the network. Duplicate multicast addresses will result in traffic collision and downstream receivers will fail to receive content.

**NOTE:** DM NVX devices can have a multicast transmit address anywhere in the range from 239.0.0.1 to 239.127.255.255. DM NAX audio-over-IP devices use a multicast range from 239.8.0.1 to 239.127.255.255.

- **Device Name:** Displays the name of the DM NVX device. A custom name can also be entered in this text box. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the stream.
- **Status:** Displays the status of the network stream (for example, **Stream starting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the outgoing stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

## Services

Services (Autosaved)

Preview Settings

Preview Output

Base File Name

Generated Preview Images

Type	File Name
135px	preview_135px.jpeg
270px	preview_270px.jpeg
540px	preview_540px.jpeg

Local Preview Path

The image preview feature of the DM NVX device is configured in the **Services** section of the **Stream** accordion. Image preview provides still images (thumbnails) that show the current video being received by an input of a DM NVX transmitter or displayed by an output of a DM NVX receiver. Still images are shown at one frame per second. Image preview supports the maximum resolution of the source and scales the image while maintaining the aspect ratio. Images can be previewed in the DM NVX web interface and accessed remotely using a web browser. The images can also be previewed on a Crestron touch screen or third-party interface.

To configure the image preview feature:

1. Set the **Preview Output** toggle to the right to enable the image preview feature.
2. Enter a prefix to add to the file names of the images that are generated by image preview in the **Base File Name** field.

The **Generated Preview Images** table lists the image previews. **Type** indicates the height of the image in pixels. **File Name** indicates the file name of the image in the following format:

**<base file name>\_<vertical resolution>px.<extension>**

- **<base file name>** is the prefix assigned to the image preview by the **Base File Name** field. If the default base file name of preview is changed, selecting the table updates the base name in the table.
- **<vertical resolution>** is the height of the image in pixels (px).
- **<extension>** is the file format of the image. The default file extension is .jpeg.

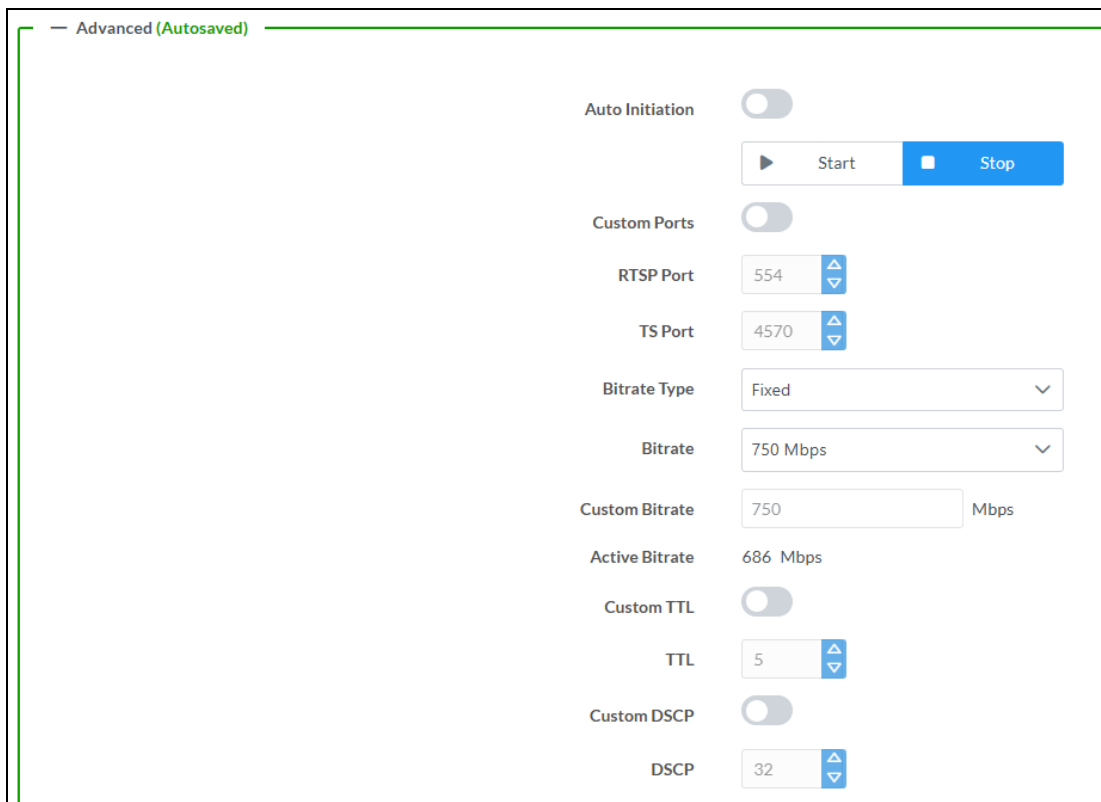
**Local Preview Path** indicates the **/preview** file path location to which image preview files are saved to the web server of the DM NVX device. An image preview file can be accessed from a web browser on a remote device by entering the following URL:

**https://<username>:<password>@<ip address>/preview/<filename>**

- **<username>** is the user name used to access the DM NVX web server.
- **<password>** is the password used to access the DM NVX web server.
- **<ip address>** is the IP address of the DM NVX device.
- **<filename>** is the file name of the image preview file.

#### Advanced

The **Advanced** section provides further configuration of the transmitting AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to configure a custom RTSP port for the transmitting DM NVX stream. Set the toggle to the left to use the default port values for both ports (the default RTSP port value is 554 and the default TS port value is 4570).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.
- Enter a custom TS port in the **TS Port** field.

**NOTE:** Valid values for both custom port fields range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **Bitrate Type:** Select either Fixed or Variable from the drop-down.
  - **Fixed:** The transmitting DM NVX stream always meets the bitrate specified by the **Bitrate** drop-down. The default and recommended bitrate value is 750 Mbps.
  - **Variable:** The bitrate of the transmitting DM NVX stream is dynamic based on the resolution of the stream content. Selecting **Variable** will disable the **Bitrate** drop-down and **Custom Bitrate** text entry field.
  - **Custom:** The transmitting DM NVX stream always meets the bitrate specified by the **Custom Bitrate** text entry field. The default and recommended bitrate value is 750 Mbps.
- **Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Fixed**.
- **Custom Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Custom**.
- **Active Bitrate:** Displays the current bitrate of the transmitting DM NVX stream.
- **Custom TTL:** Multicast Time-to-live (TTL) provides the ability to limit or extend the hop limit of a DM NVX stream that traverses routers. In IPv4 multicasting, routers have a TTL threshold assigned to each interface. Only multicast packets with a TTL greater than the threshold of the interface are forwarded.

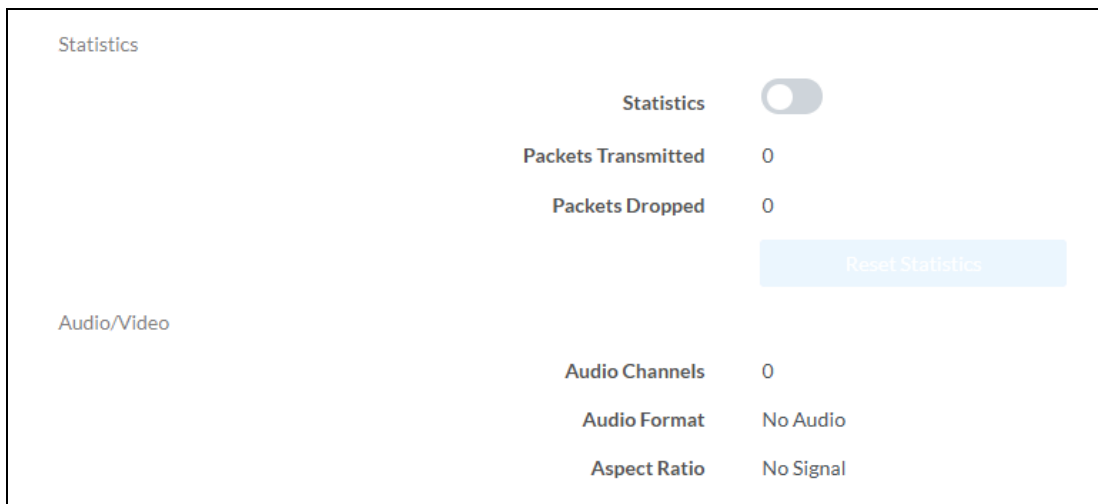
Select the **Custom TTL** checkbox to enter a custom TTL value for the DM NVX stream in the **TTL** field.

- **TTL:** Enter a value from 1 to 255. The default TTL value is 5.
- **Custom DSCP:** To implement Quality of Service (QoS), IP networks use Differentiated Services Code Point (DSCP) values. Within an IP packet header, the DSCP is a value from 0 to 63 that maps to a certain traffic classification. Based on IT department policies and network switch configurations, DSCP values are used to determine the treatment of specific packets in router queues, the routes of traffic flows, and per-hop behavior. By default, DSCP for DM NVX AV-over-IP is set to 32.

Select the **Custom DSCP** checkbox to enter a custom DSCP value for the DM NVX stream's AV-over-IP packets in the **DSCP** field

**NOTE:** Only change the DSCP value if required by IT department policies or if necessitated by poor network performance. Refer to [AV-over-IP Network Design on page 628](#) for network performance troubleshooting tips.





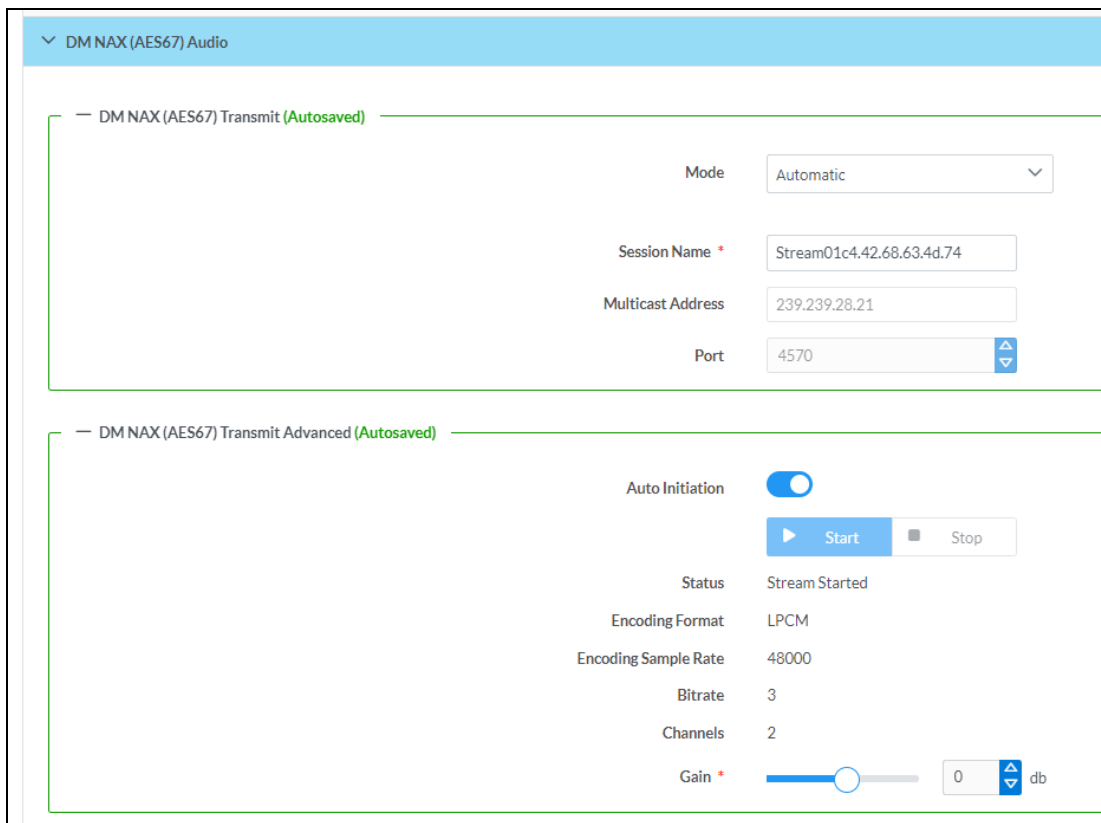
The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the transmitting DM NVX stream:
  - **Packets Transmitted** will display the total number of packets transmitting by the DM NVX device as part of the outgoing DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - Select **Reset Statistics** to set both **Packets Transmitted** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the transmitting DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the transmitting DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the transmitting DM NVX stream.

## DM NAX (AES67) Audio

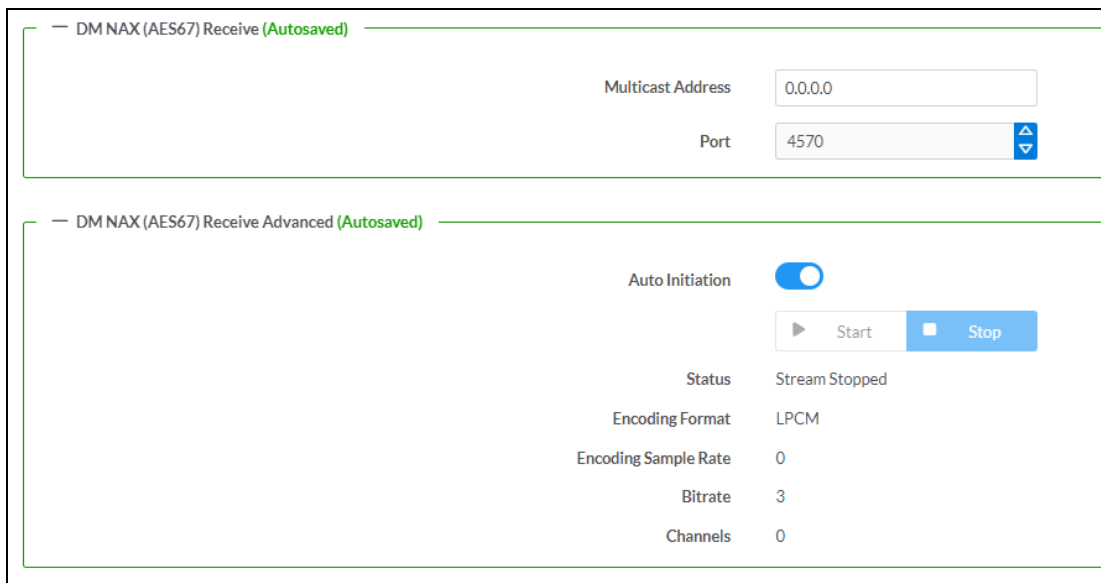
DM NVX devices natively support DM NAX® audio-over-IP technology, which is built off the standards of AES67. AES67 support allows a selected audio source to be transmitted as a 2-channel AES67 stream while another 2-channel AES67 audio stream is received from another AES67-capable device or Crestron DM NAX device.

Use the **DM NAX (AES67) Audio** accordion to configure the DM NAX audio-over-IP transmit and receive streams of the DM NVX device.



To configure the **DM NAX (AES67) Transmit** stream:

1. Select a stream addressing mode from the **Mode** drop-down:
  - **Automatic** adds 1 to the outgoing video stream multicast address to generate the DM NAX transmit multicast address. For example, if the video multicast address is 239.8.0.0, the DM NAX (AES67) multicast address is automatically set to 239.8.0.1.
  - **Manual** requires the multicast address of the transmitting DM NAX stream to be set manually. Selecting **Manual** enables the **Multicast Address** and **Port** text entry fields.
  - **Disabled** turns off DM NAX transmission from the DM NVX device.
2. Set a custom session name in the **Session Name** text entry field. This is similar to setting a hostname for an IP address on the LAN. The session name will appear in addition to the multicast address when the DM NAX audio-over-IP stream is discovered on the network.
3. If the **Mode** is set to **Manual**, enter custom values in the **Multicast Address** and **Port** text entry fields.
4. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the DM NAX transmit stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.
5. Adjust the **Gain** slider to configure the audio level compensation on the transmitting DM NAX stream from -10 to +10 dB.

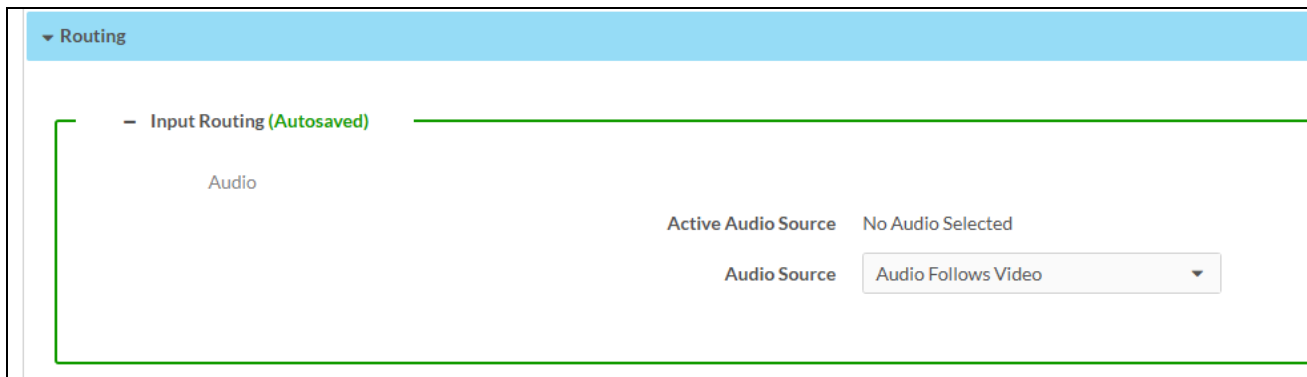


To configure the **DM NAX (AES67) Receive** stream:

1. Enter a valid multicast IP address in the **Multicast Address** field.
2. Enter the port value of the stream in the **Port** field.
3. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the incoming DM NAX stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

## Routing

Use the **Routing** accordion to configure the audio and video routing behavior of the DM NVX device's internal switcher and secondary audio stream.



### Input Routing

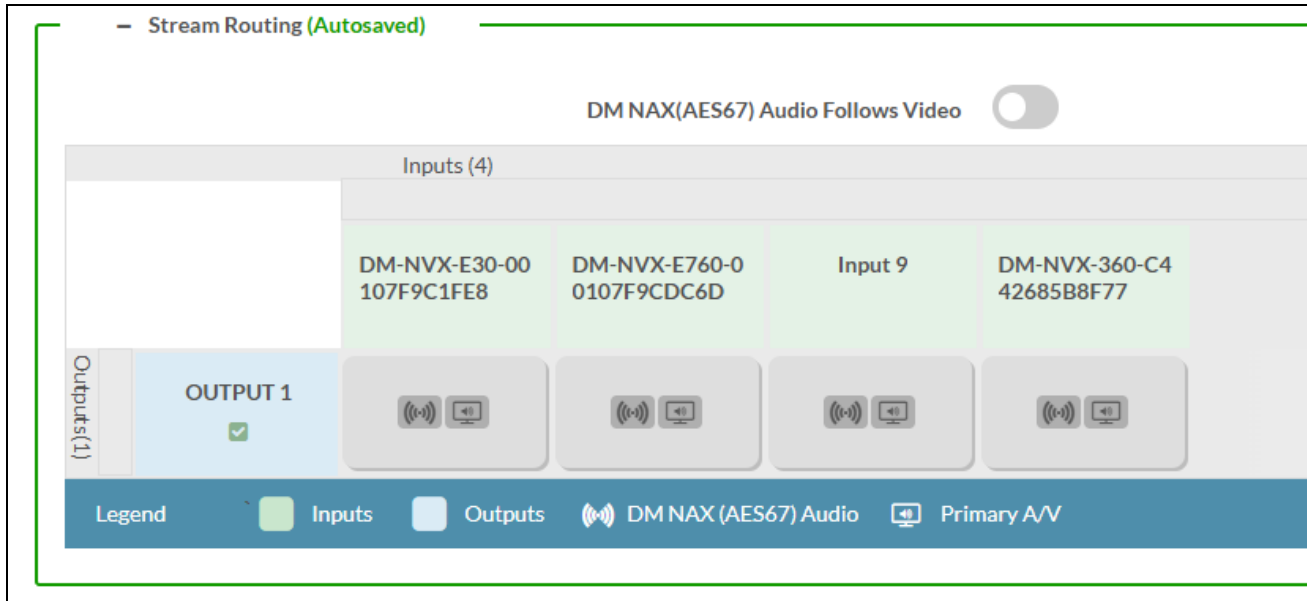
The fields under the **Input Routing** subheading refer specifically to audio signal routing, which can be handled separately from video routing.

- The **Active Audio Source** read-only field displays the name of the currently active audio source. This reflects the audio that is embedded in the HDMI output (for D models) or DM NVX AV-over-IP stream (for E models), as well as the audio that transmits from the analog audio connector.

- The options available for the **Audio Source** drop-down depend on the model:
  - For D models, the options are **Audio Follows Video**, **Primary Stream Audio**, and **DM NAX (AES67) Audio**.
  - For E30 models, the options are **Audio Follows Video**, **HDMI 1**, and **DM NAX (AES67) Audio**.
  - For E760 models, the options are **Audio Follows Video**, **INPUT 1**, and **DM NAX (AES67) Audio**.

## Stream Routing (D Models Only)




The **Stream Routing** section houses the routing matrix for audio and video signals that can be received over the network.



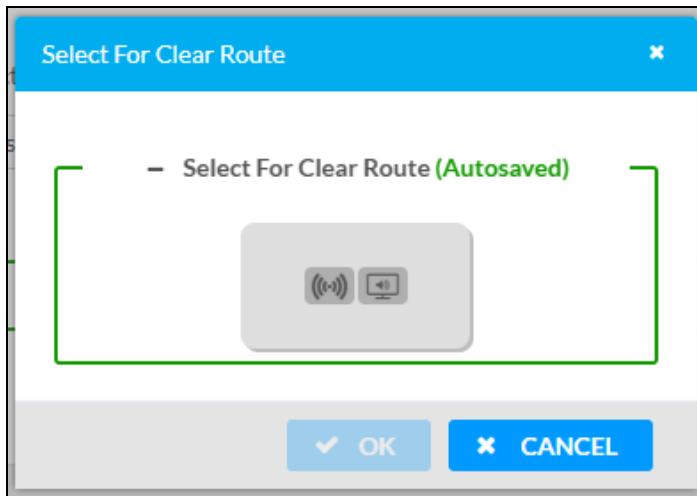
**NOTE:** In order for the routing matrix to appear, at least one subscription must be added from the **Subscriptions** accordion. Refer to [Subscriptions \(D Models Only\) on page 545](#) for information on adding subscriptions.

Set the **DM NAX (AES67) Audio Follows Video** toggle to the right to have the secondary audio stream match the same routes as the primary AV stream. Set the toggle to the left to manage the secondary audio stream routing independently of the primary AV stream.

Use the routing matrix to establish or break signal routes:

- To route an AV-over-IP stream to the DM NVX device, select the  **Primary A/V** icon in that stream's matrix column. If the **DM NAX (AES67) Audio Follows Video** toggle is set to the right, the  **DM NAX (AES67) Audio** icon will also be selected automatically for that stream.
- To route a DM NAX (AES67) stream to the DM NVX device, select the  **DM NAX (AES67) Audio** icon in that stream's matrix column. To manage this independently of the AV-over-IP stream, the **DM NAX (AES67) Audio Follows Video** toggle must be set to the left.

- To break a route, do one of the following:
  - Select the **X** icon for a given input to clear all routes from that input.
  - Select the **✓** icon for a given output to clear routes from that input. A **Select For Clear Route** window appears.



Select either or both of the signal types to clear all routes of those types from the output, then select **OK** to clear those routes or **Cancel** to cancel the operation.

## Subscriptions (D Models Only)

The **Subscriptions** accordion allows the DM NVX receiver to subscribe to discovered network AV-over-IP streams for quick routing and switching without having to manually enter multicast addresses or session names.

Subscriptions						
- Subscribed Streams						
No	Device Name	Stream Details	Bitrate	Actions	Reorder	
1	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted), 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	Unsubscribe		

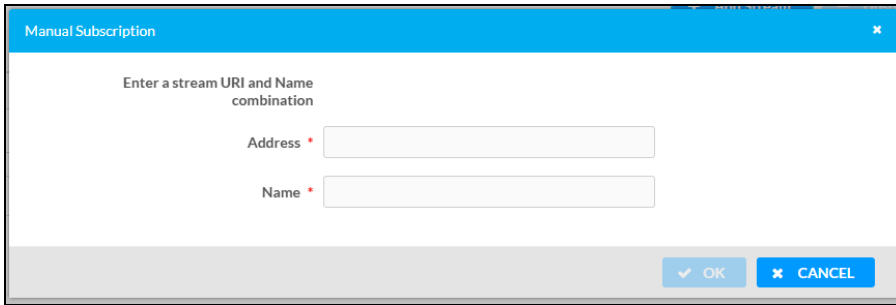
  

- Available Streams						
Device Name	Stream Details	Bitrate	Add Stream			
DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted) TS/RTP, 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	Subscribe			
DM-NVX-E760-00107F9C6D	Stream not started	686	Subscribe			
Input 9	rtsp://172.30.164.169:554/live.sdp (Encrypted) TS/RTP, 239.8.0.64	360	Subscribe			
DM-NVX-360-C442685B8F77	rtsp://172.30.164.163:554/live.sdp (Encrypted) TS/RTP, 239.8.0.0	686	Subscribe			

The **Subscribed Streams** table displays all network streams that the device is subscribed to. These streams are also available in the routing matrix in the **Routing** accordion. Refer to [Stream Routing \(D Models Only\)](#) on page 544 for information on routing a subscribed stream.

To add a stream to the table, do either of the following:

- Select **+ Add Stream**. A **Manual Subscription** window appears.

A dialog box titled "Manual Subscription" with a blue header and a close button (X) in the top right corner. The main area contains the text "Enter a stream URI and Name combination" followed by two input fields: "Address" and "Name", each with a red asterisk to its left. At the bottom right, there are two buttons: "OK" with a checkmark icon and "CANCEL" with an X icon.

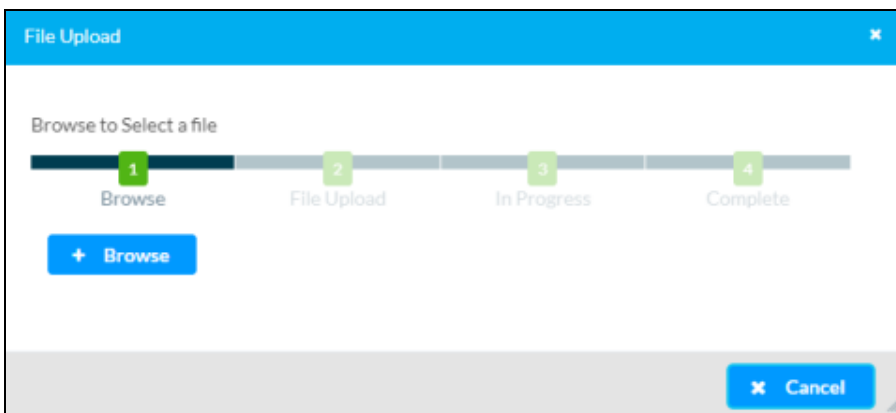
- Enter the multicast address of the stream in the **Address** field.
  - Enter the device name of the transmitting device in the **Name** field.
  - Select **✓ OK** to add the stream to the **Subscribed Streams** list or select **X Cancel** to cancel the operation.
- Select the **Subscribe** button for a stream listed in the **Available Streams** table.

To add multiple streams to the table at once, select the checkbox for each desired stream in the **Available Streams** table, then select **+ Subscribe Checked**.

To remove a stream from the table, select **x Unsubscribe** in its table row. To remove multiple streams at once, select the checkbox for each stream in the **Subscribed Streams** table, then select **- Unsubscribe** at the top of the table.

The **Subscribed Streams** table can also be exported as a .xml file to other DM NVX receivers. This allows the subscription process to be performed even more efficiently on other receivers. To export the table and upload it to another receiver:

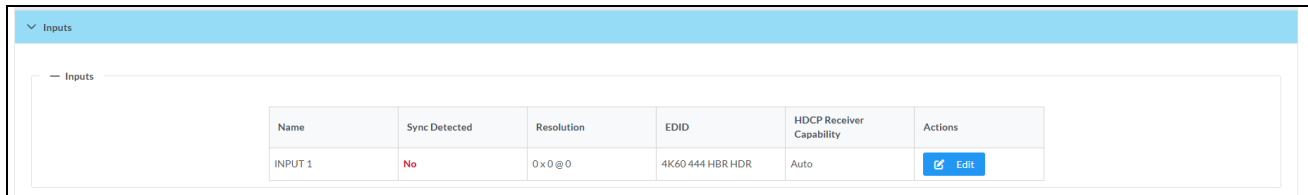
1. Subscribe to all of the desired network streams.
2. Select **Save Subscription** at the top of the **Subscribed Streams** table. A .xml file will be downloaded to the connected PC.
3. Log in to the next DM NVX receiver's web interface and navigate to its **Subscriptions** accordion.
4. Select **Load Subscriptions** at the top of the **Subscribed Streams** table. A **File Upload** window appears.

A dialog box titled "File Upload" with a blue header and a close button (X) in the top right corner. The main area contains the text "Browse to Select a file" above a progress bar. The progress bar is divided into four segments: "Browse" (1), "File Upload" (2), "In Progress" (3), and "Complete" (4). Below the progress bar is a blue button with a plus sign and the text "Browse". At the bottom right, there is a blue button with an X icon and the text "Cancel".

5. Select **+ Browse**. Locate the .xml file, then select **Upload** to upload it to the DM NVX device. When the upload completes, the window will close and the interface will return to the **Subscriptions** accordion with the **Subscribed Streams** table filled out.

## Inputs (E Models Only)

The **Inputs** accordion contains source resolution and EDID information as well as input configuration options for the local input connector on the DM NVX device.

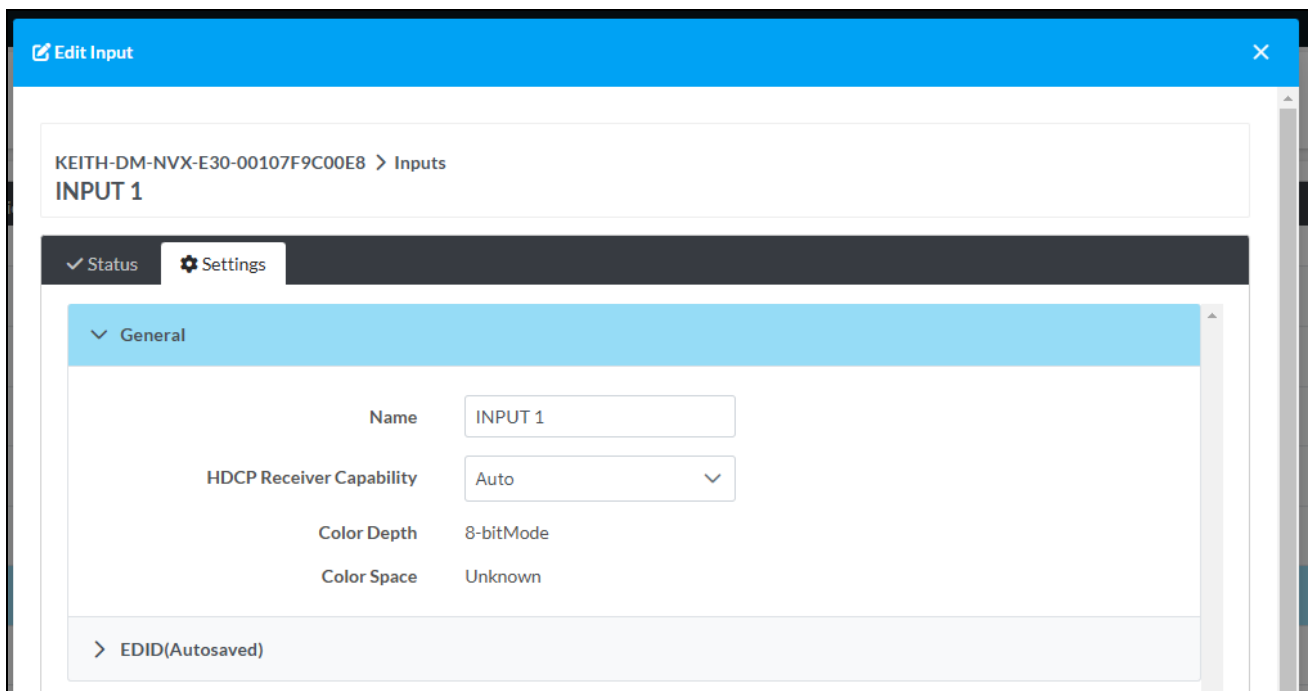


Name	Sync Detected	Resolution	EDID	HDCP Receiver Capability	Actions
INPUT 1	No	0x0@0	4K60 444 HBR HDR	Auto	<a href="#">Edit</a>

To configure the input, select the **Edit** button. An **Edit Input** window appears. The contents of this window vary between the DM-NVX-E30 models and the DM-NVX-E760 models.

### Edit Input - E30 Models

The **Edit Input** window will open to the **Settings** tab by default. This tab enables configuration of the available input settings for the HDMI input.



KEITH-DM-NVX-E30-00107F9C00E8 > Inputs  
INPUT 1

Settings

General

Name: INPUT 1

HDCP Receiver Capability: Auto

Color Depth: 8-bitMode

Color Space: Unknown

> EDID(Autosaved)

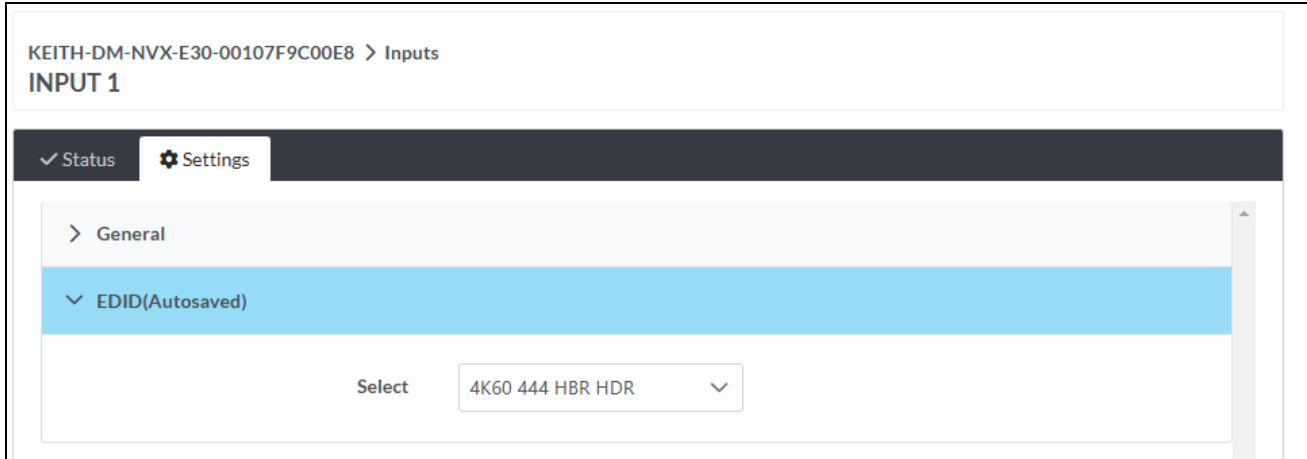
The **General** accordion is open by default.

Enter a friendly name for the input in the **Name** text entry field.

Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version. The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display.

**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

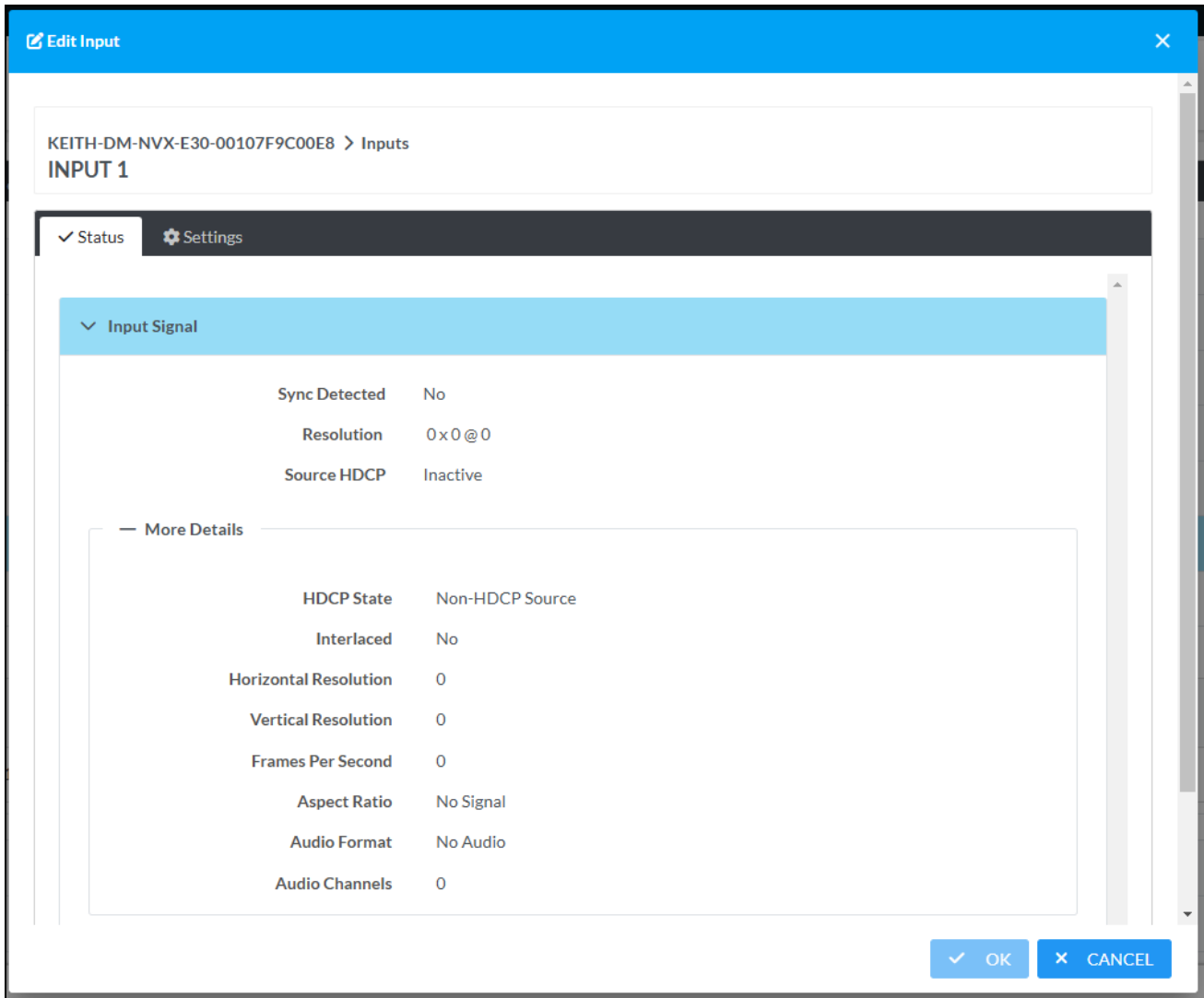
The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal. Select the **EDID** accordion to access EDID settings specific to the selected input.



Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 510](#) for more information on loading custom EDIDs to this list.



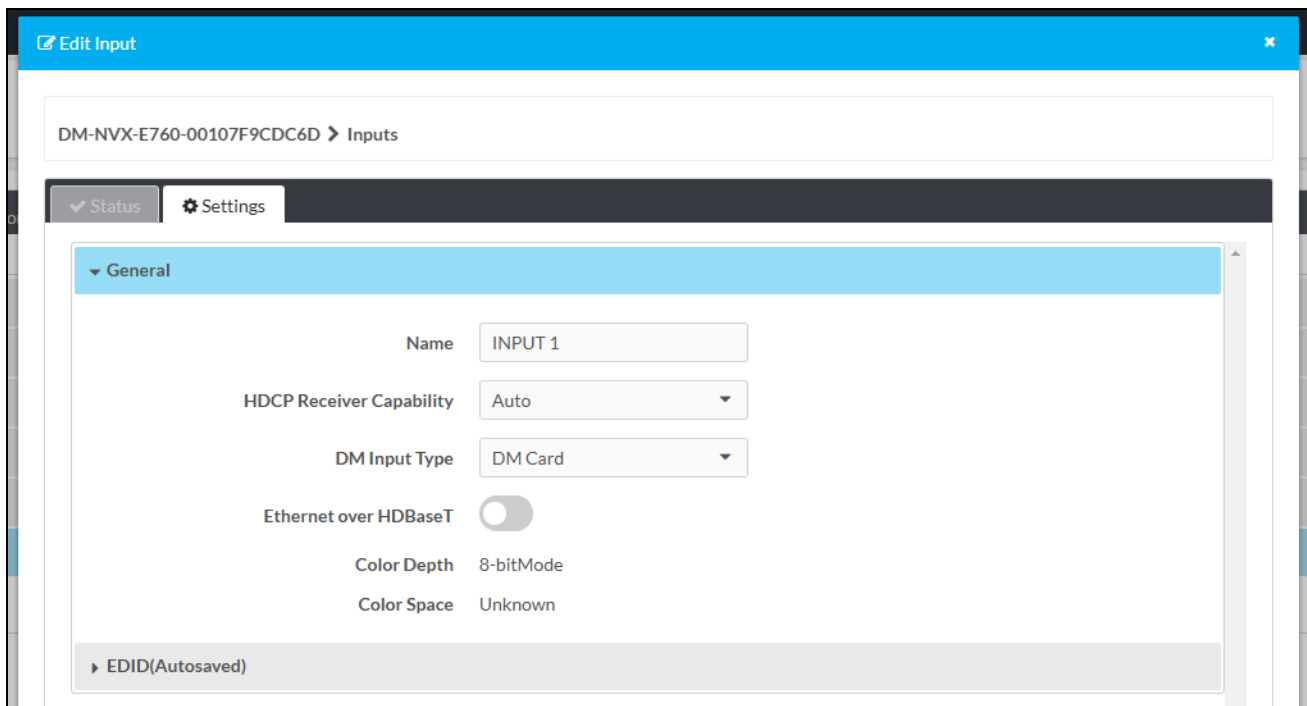
Select the **Status** tab to reference sync, resolution, HDCP, and audio information for the connector and input source.



Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.

### Edit Input - E760 Models

The **Edit Input** window will open to the **Settings** tab by default. This tab enables configuration of the available input settings for the DM input.



The **General** accordion is open by default. Configure the following settings:

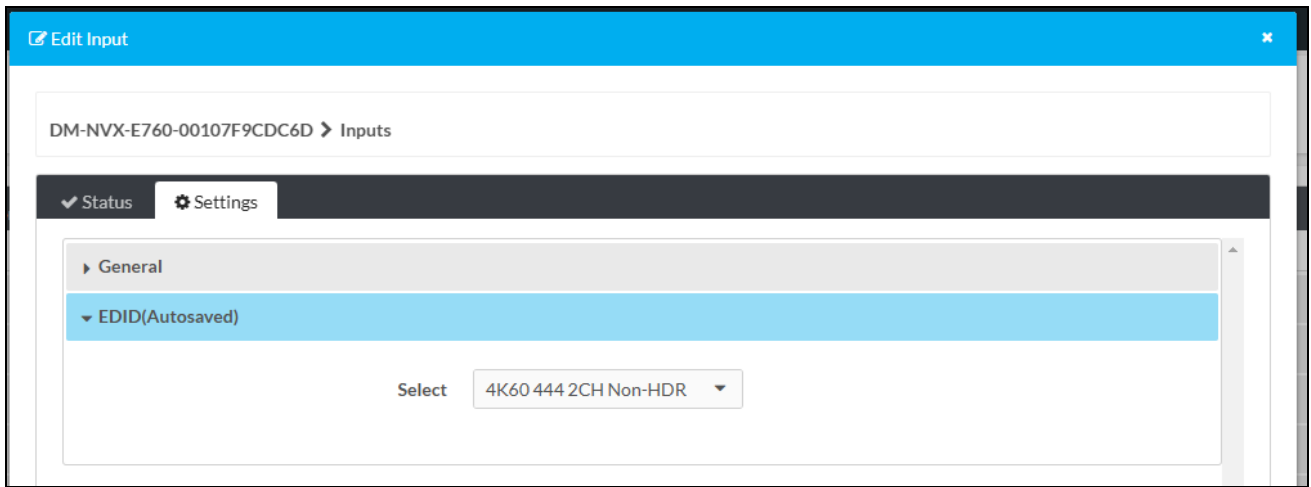
- Enter a friendly name for the input in the **Name** text entry field.
- Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version. The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display

**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

- Use the **DM Input Type** drop-down to select whether the DM input source is a **DM Transmitter**, **DM Lite Transmitter** (now known to as DM Essentials), or a **DM Card**.
- Set the **Ethernet over HDBaseT** toggle to the right to allow the LAN to extend over the HDBaseT connection between the DM source device and the DM NVX device. Set the toggle to the left to prevent the LAN from extending over this connection.

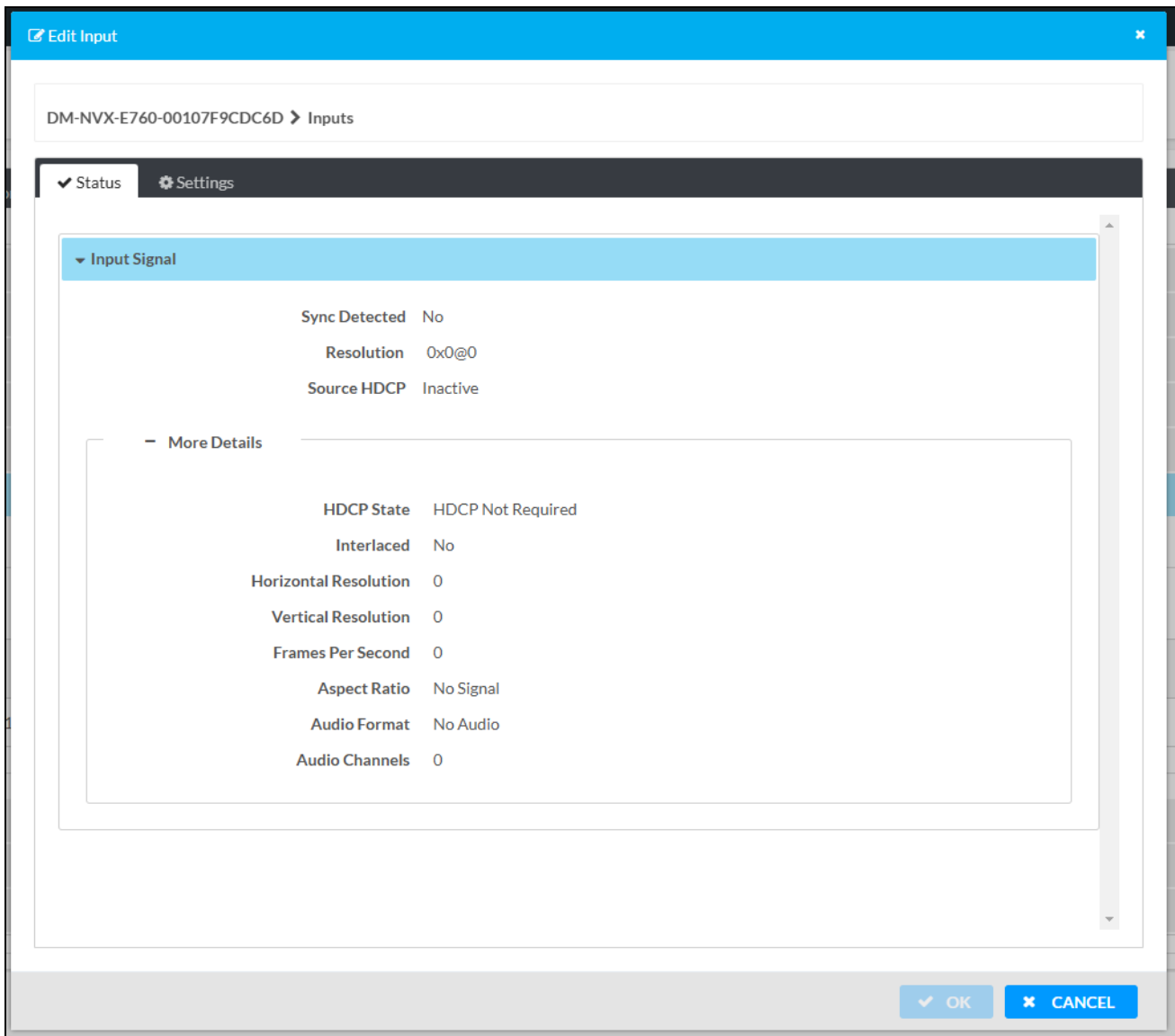
The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal.

Select the **EDID** accordion to access EDID settings specific to the selected input.



Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 510](#) for more information on loading custom EDIDs to this list.

Select the **Status** tab to reference sync, resolution, HDCP, and audio information for the connector and input source.




Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.

## Outputs

The **Outputs** accordion contents depend on whether the device is a decoder (D models) or encoder (E models).

### Outputs (D Models)

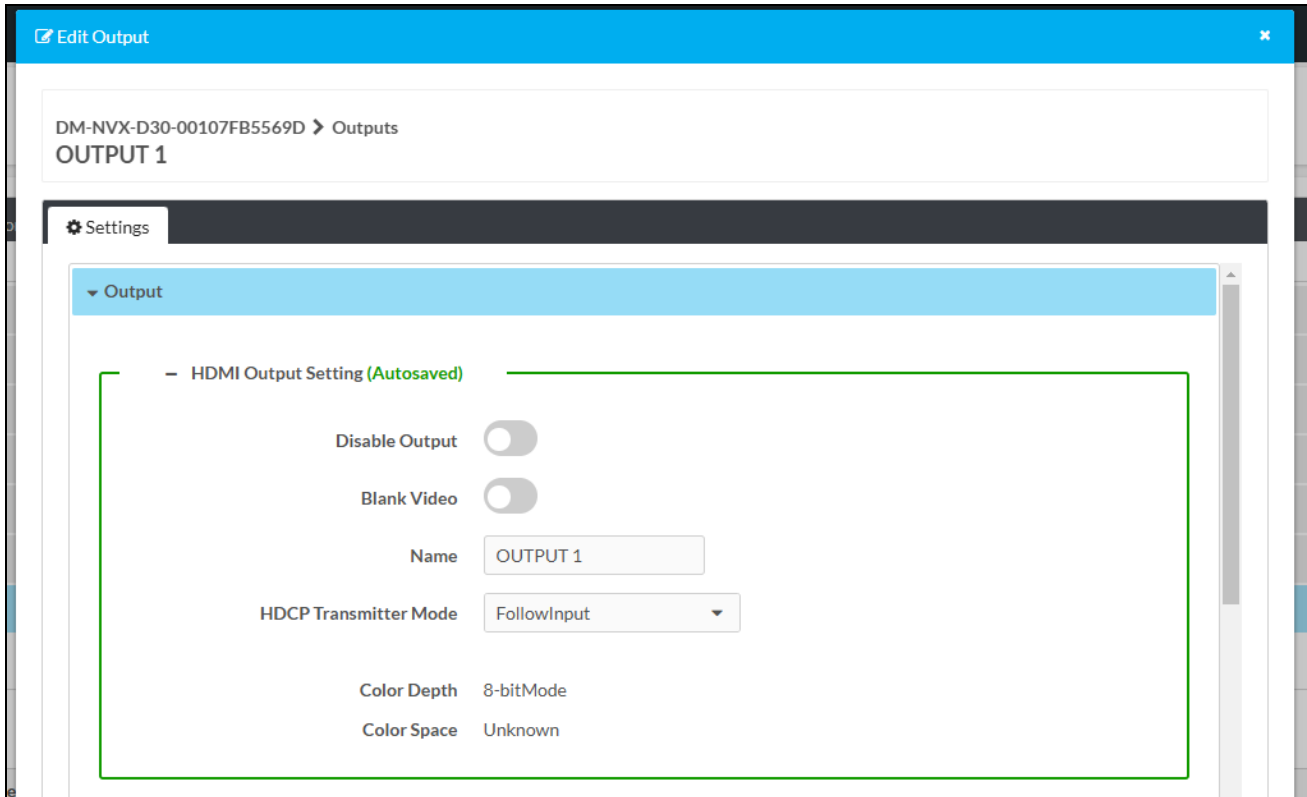
In the interface of a D30 model, the **Outputs** accordion contains status information and an **Edit** option for the local HDMI output connector on the DM NVX device.

Name	Sink Connected	Resolution	HDCP Transmitter Mode	Actions
HDMI 1	Yes	3840x2160@60	Follow Input	 Edit

To configure the output, select the **Edit** button. An **Edit Output** window appears. The settings available in the **Edit Output** window depend on which mode the DM NVX device is in.

### Edit Output - Output Accordion

The **Output** accordion is open by default.



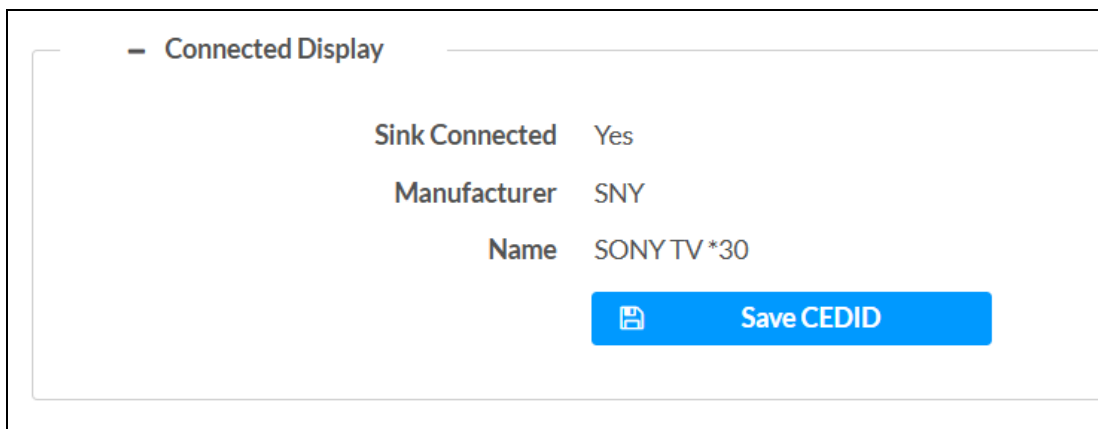
The screenshot shows the 'Edit Output' window for 'OUTPUT 1'. Under the 'Settings' tab, the 'Output' accordion is expanded to show 'HDMI Output Setting (Autosaved)'. The settings are as follows:

- Disable Output:** A toggle switch currently turned to the left (off).
- Blank Video:** A toggle switch currently turned to the left (off).
- Name:** A text input field containing 'OUTPUT 1'.
- HDCP Transmitter Mode:** A dropdown menu set to 'FollowInput'.
- Color Depth:** A text input field containing '8-bitMode'.
- Color Space:** A text input field containing 'Unknown'.

Configure basic settings under the **HDMI Output Setting** subheading:

- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Set the **Blank Video** toggle to the right to transmit a full-screen black video signal. Set the toggle to the left to transmit the video signal of the selected input.
- Enter a friendly name for the output in the **Name** text entry field.

- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **Follow Input:** The HDCP level of the output will be forced to the supported HDCP level of the local input.
  - **Force Highest:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the entire signal chain.
  - **Never Authenticate:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.
- The **Color Depth** and **Color Space** fields are read-only values that display the current depth and space of the video output signal, respectively.



The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 510](#) for more information on loading custom EDID files.

- Output Signal	
Transmitting	Yes
Resolution	3840x2160@60
Horizontal Resolution	3840
Vertical Resolution	2160
Frames PerSecond	60
Aspect Ratio	16:9
Audio Format	No Audio
Audio Channels	0

The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

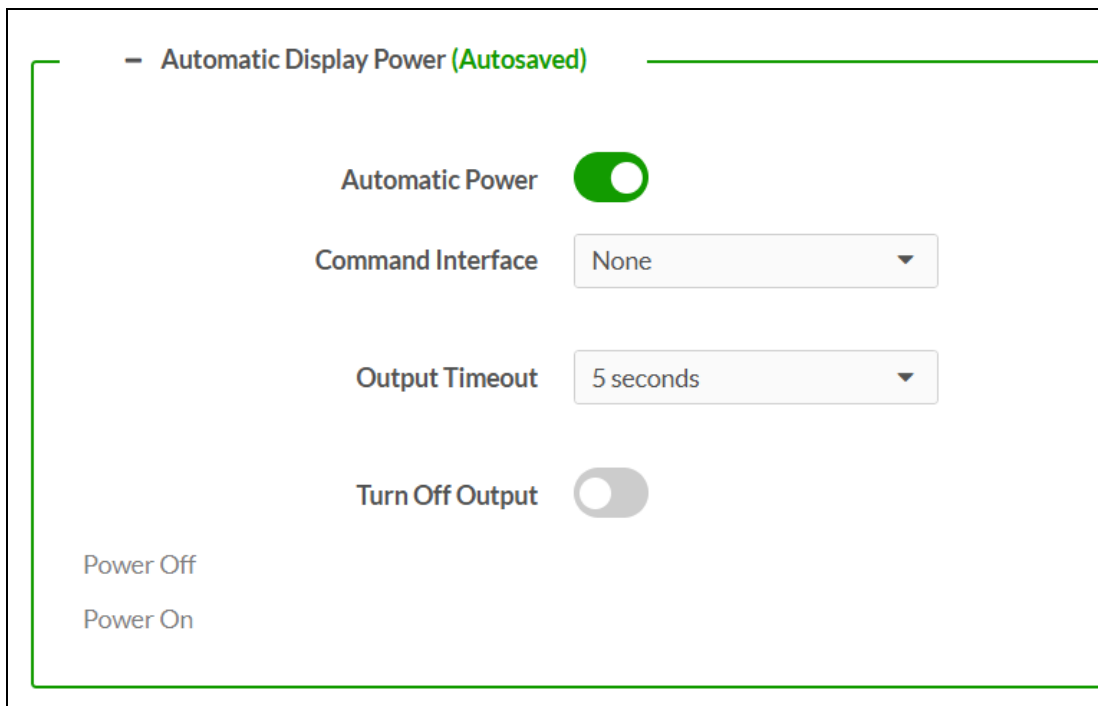
- Analog Settings (Autosaved)

Analog Audio Volume \*  -14 db

To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.



The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**.

**NOTE:**IR and **RS-232** are not available on card-based models.

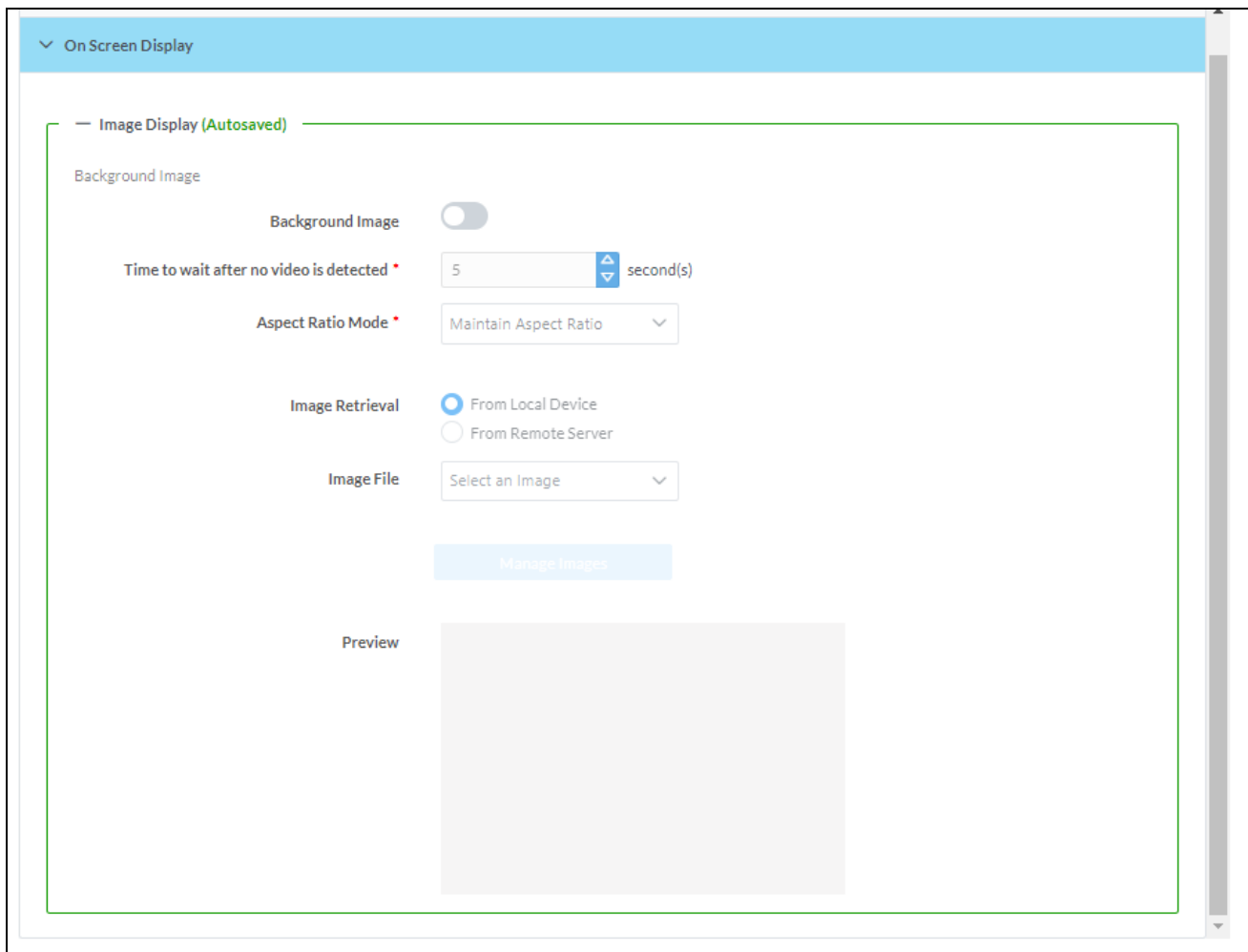
Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.

#### Edit Output - On Screen Display Accordion

Select the **On Screen Display** accordion to expand it. This accordion houses the **Image Display** settings that allow a static background image to be shown on the connected display.

**CAUTION:** Displaying a static image for extended periods of time may result in image burn-in on any type of connected display. Consult documentation from the display manufacturer to determine recommended timeout or image refresh settings to avoid burn-in.





To configure the **Image Display** settings:

1. Set the **Background Image** toggle to the right to display a background image on the connected display, and to make all the other settings in the accordion available for configuration.
2. Enter a value in the **Time to wait after no video is detected** field from 5 seconds to 65,535 seconds to determine how long the device will wait after input signal is no longer detected before displaying the background image.
3. Use the **Aspect Ratio Mode** drop-down to select one of the following:
  - **Maintain Aspect Ratio:** The aspect ratio of the background image is preserved at the output. This may result in letterboxing or pillarboxing black bars at the edges of the display area.
  - **Stretch:** The aspect ratio of the background image is stretched to fit the aspect ratio of the display. This may distort the background image.
  - **1:1:** The background image is mapped 1:1 at the display without any aspect ratio scaling. This will preserve the aspect ratio of the image, but may not fill the entire display area, resulting in black borders around the image.

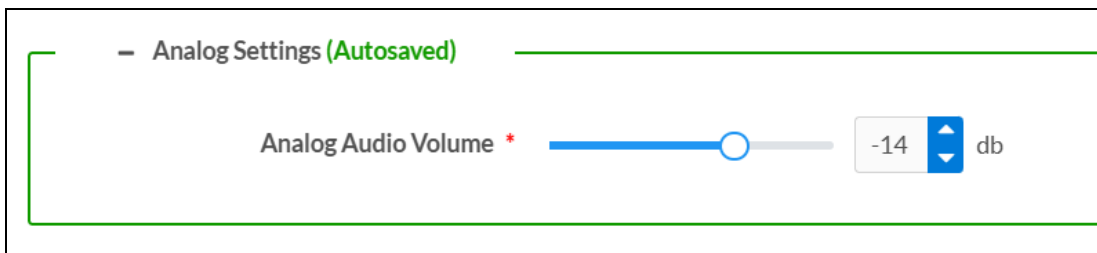
#### 4. Select an option for **Image Retrieval**:

- **From Local Device:** Select this option if an image stored locally on the DM NVX device will be used as the background image. Select the desired image from the **Image File** drop-down. To load custom images to the DM NVX device, select **Manage Images** from the **Edit Output** window or from the **Action** menu. Refer to [Action on page 510](#) for more information.
- **From Remote Server:** Select this option if an image hosted on a network server will be used as the background image. Enter the network file path to the image in the **Remote Path** field.
  - This option also allows the DM NVX device to refresh the image at a given interval. To have the DM NVX refresh the image, select the **Refresh** checkbox below the **Image Preview**, then enter a refresh rate in minutes from 1 to 65,535 minutes. The default refresh rate is 60 minutes.

To disable the background image, set the **Background Image** toggle to the left.

### Outputs (E Models)

In the interface of an E30 or E760 model, the **Outputs** accordion only contains the **Analog Audio Volume** setting for the local **AUDIO I/O** connector of the device.



To adjust the **Analog Audio Volume**, do one of the following:

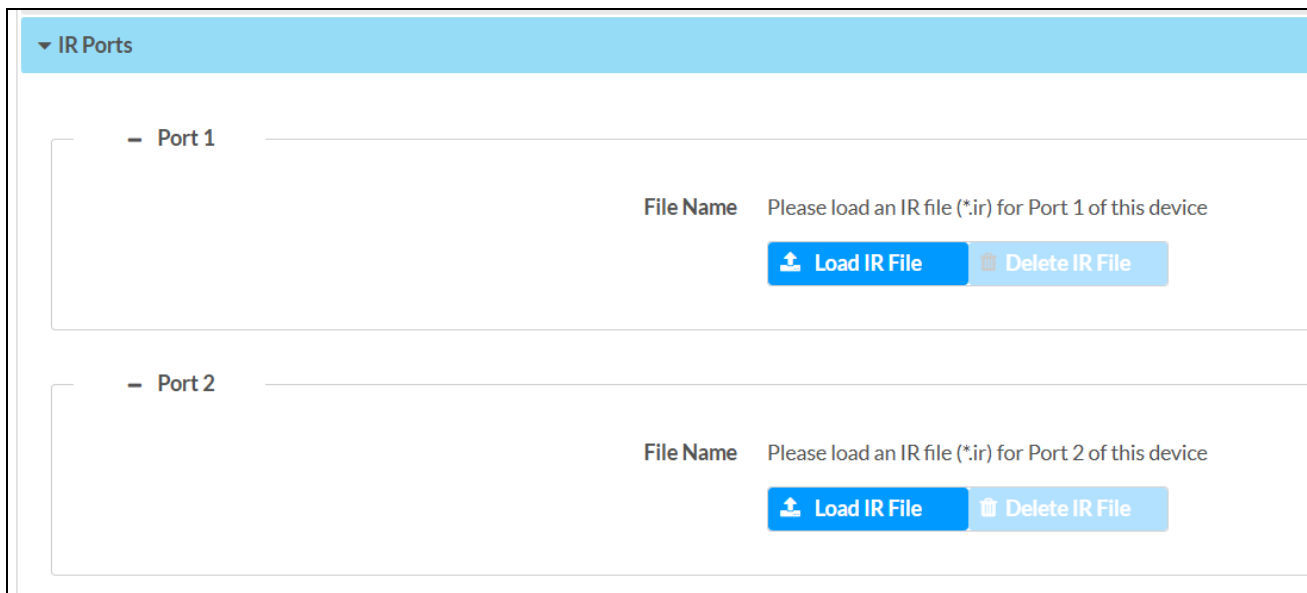
- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.

### IR Ports

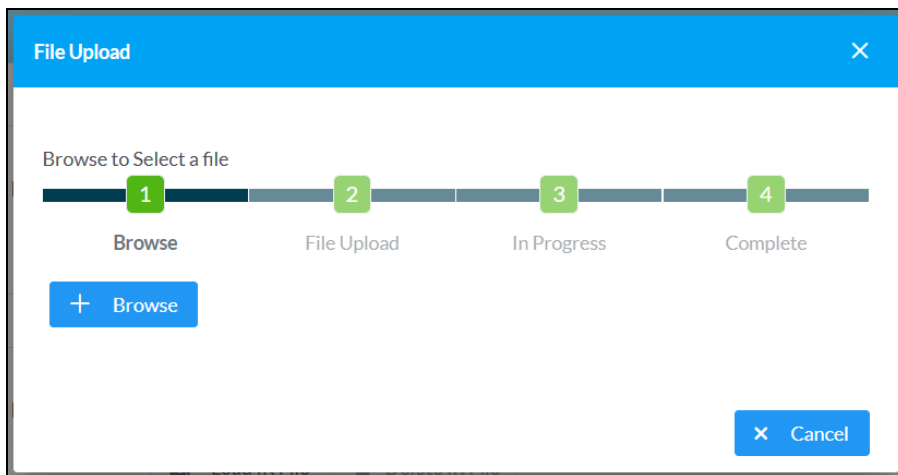
**NOTE:** This accordion is not available on card-based models.

The **IR Ports** accordion allows custom IR files containing device commands to be uploaded to the DM NVX device for each IR connector. Custom IR files can be generated via the [Device Learner](#) utility within Crestron Toolbox software. Each IR port can hold only one IR file at a time. IR files must be loaded to each port individually.



To upload an IR file to a given IR port:

1. Select **Load IR File**.
2. In the **File Upload** window that appears, select **+ Browse**.



3. Locate and select the desired IR file, then select **Open**. The selected file name is displayed.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The IR file is now loaded to the IR port.

Once the IR file is uploaded, its filename will appear next to the IR port it was uploaded to. A read-only table showing all included commands will also appear and populate.

File Name TV.ir

IR Code	IR Command
1	On
2	Off
3	Input

To delete an IR file from a given IR port, select **Delete IR File**.

## Port Selection (E760 Models Only)

The **Port Selection** feature allows the device's internal network traffic to be managed and segregated based on traffic type. Internal VLANs are used to segment device management, video, AES67, and USB traffic to discrete Ethernet ports. With **Port Selection** disabled, the additional Ethernet ports of the DM NVX device can be used as courtesy ports to extend the connected LAN to a local network device. With **Port Selection** enabled on all DM NVX devices on a network, traffic types can be physically separated from the control network onto dedicated networks.

▼ Port Selection

Port Selection

Management Port1 ▼

Video Port1 ▼

Audio/NAX Port1 ▼

To configure **Port Selection**:

1. Set the **Port Selection** toggle to the right to enable **Port Selection**. Set the toggle to the left to disable **Port Selection**. By default, **Port Selection** is disabled.
2. With **Port Selection** enabled:
  - a. Select an Ethernet port from the **Management** drop-down to designate it to handle network traffic relating to device configuration and connection to a control system.
  - b. Select an Ethernet port from the **Video** drop-down to designate it to handle the DM NVX AV-over-IP streaming network traffic.
  - c. Select an Ethernet port from the **Audio/NAX** drop-down to designate it to handle audio-over-IP streaming network traffic.

**NOTE:** The audio signal in the primary DM NVX AV-over-IP stream will still traverse the port designated by the **Video** drop-down. The **Audio/NAX** drop-down only designates the port for the secondary audio stream.

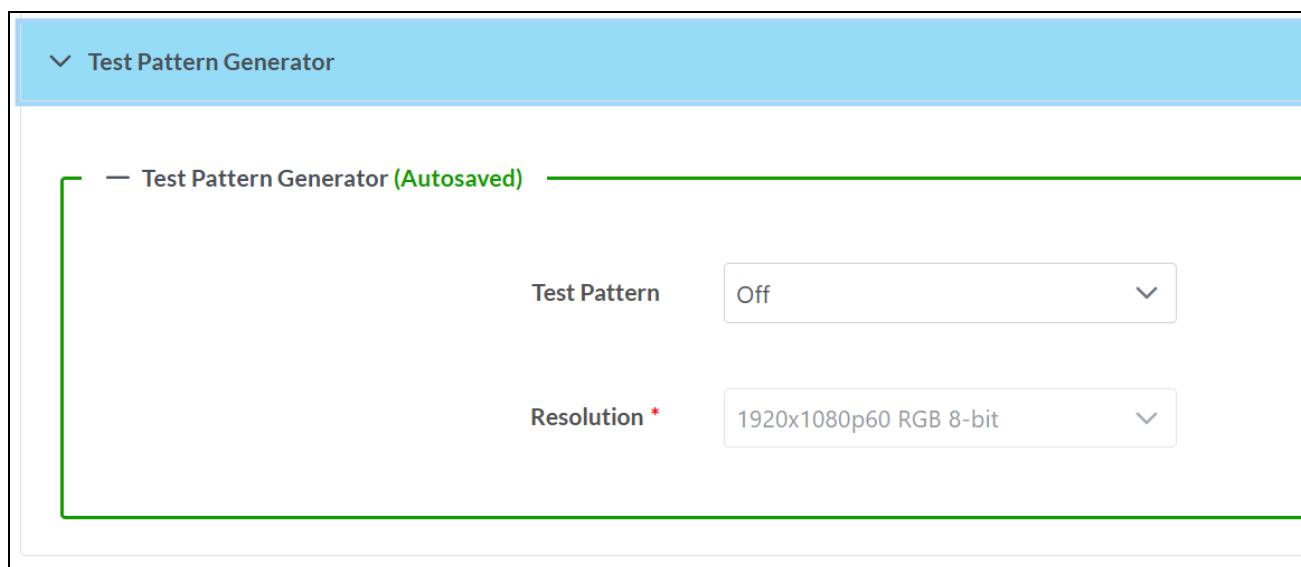
3. Select **Save** to apply the new settings.

**NOTE:** Changes to **Port Selection** will require a device reboot.

## Test Pattern Generator (E Models Only)

The **Test Pattern Generator** accordion contains settings for enabling various video test patterns to replace the DM NVX AV-over-IP video output signal.

**NOTE:** The **Test Pattern Generator** accordion is only available when the device is set to **Transmitter** mode.



The screenshot shows a web interface for the 'Test Pattern Generator'. At the top, there is a blue header with a dropdown arrow and the text 'Test Pattern Generator'. Below this, a green border encloses the settings area. Inside, there is a title 'Test Pattern Generator (Autosaved)'. Two settings are visible: 'Test Pattern' with a dropdown menu currently set to 'Off', and 'Resolution \*' with a dropdown menu currently set to '1920x1080p60 RGB 8-bit'.

To set a test pattern:

1. Use the **Test Pattern** drop-down to select an available pattern from among **Off**, **SMPTE ColorBars**, **Black**, **White**, **Vertical Lines**, **Grid**, **Color Bars**, **Gray Gradient**, **RGB Gradient**, and **Frequency Adjust**. Refer to the table below for a reference of each pattern.
2. Use the Resolution drop-down to select a resolution for the selected test pattern.

### Available Test Patterns

**SMPTE ColorBars**



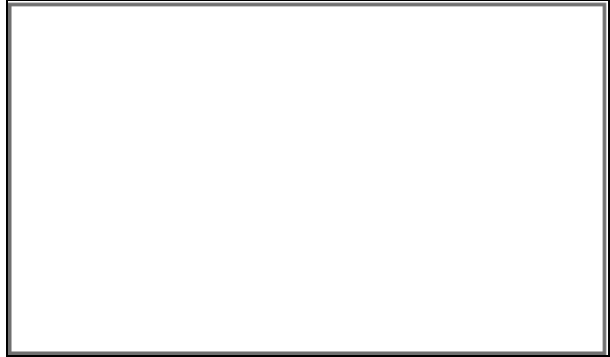
---

**Black**



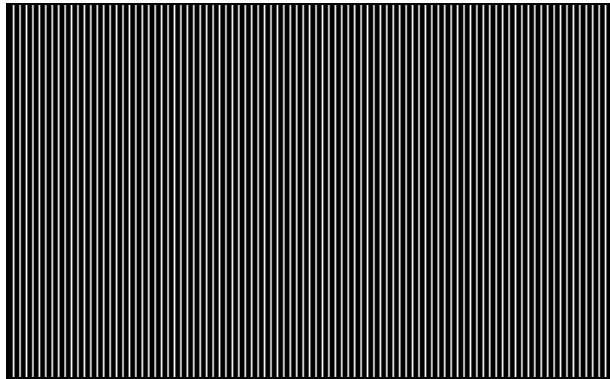
---

**White**



---

**Vertical Lines**

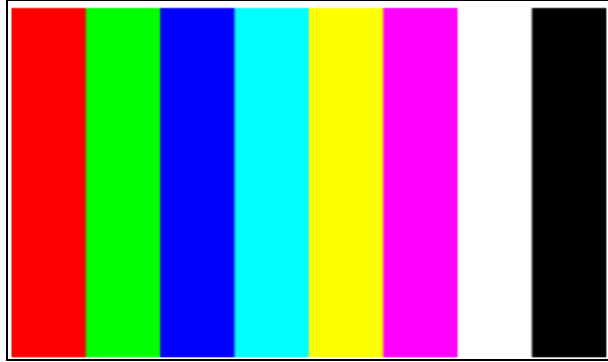


---

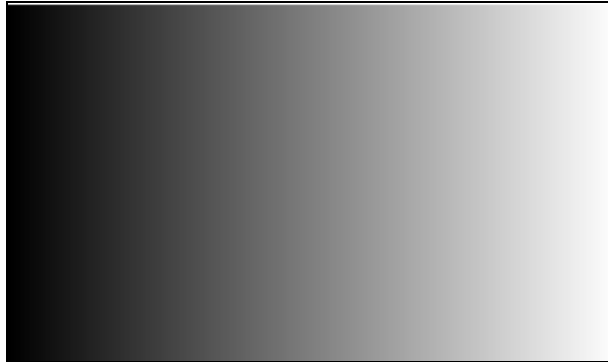
**Grid**



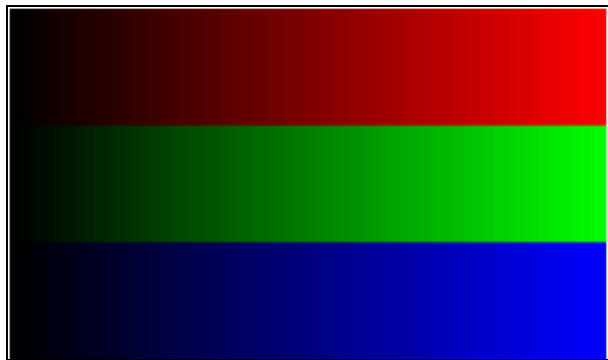
**Color Bars**



**Gray Gradient**



**RGB Gradient**



**Frequency Adjust**

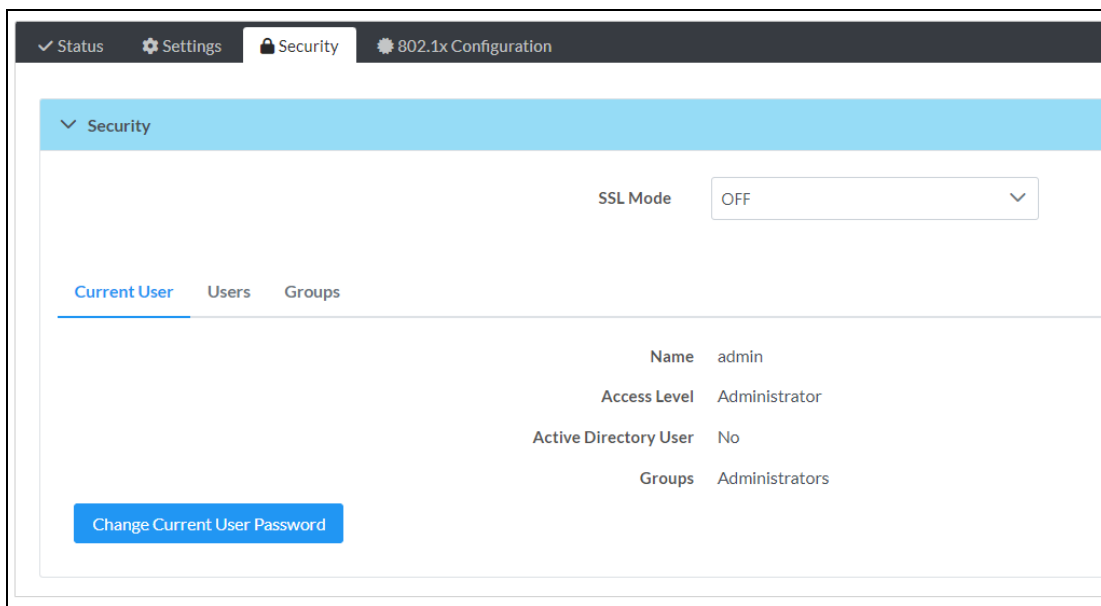


# Security

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM NVX device functions. By default, security is disabled.

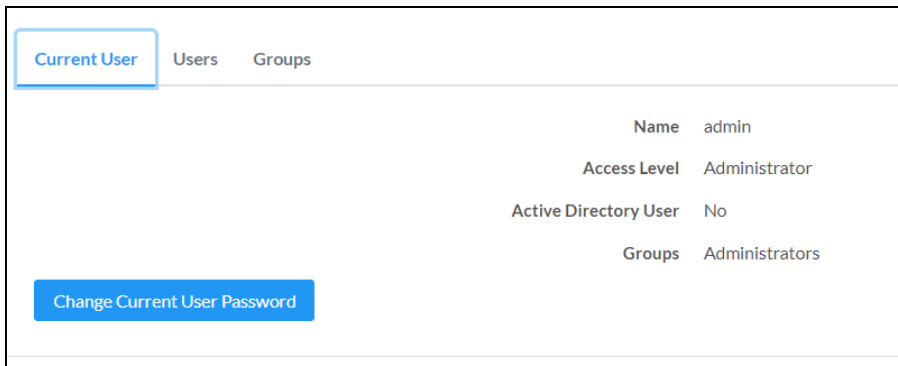


Select **Encrypt and Validate**, **Encrypt**, or **OFF** from the **SSL Mode** drop-down menu to specify whether to use encryption. By default, **SSL Mode** is set to **OFF**.

## Current User

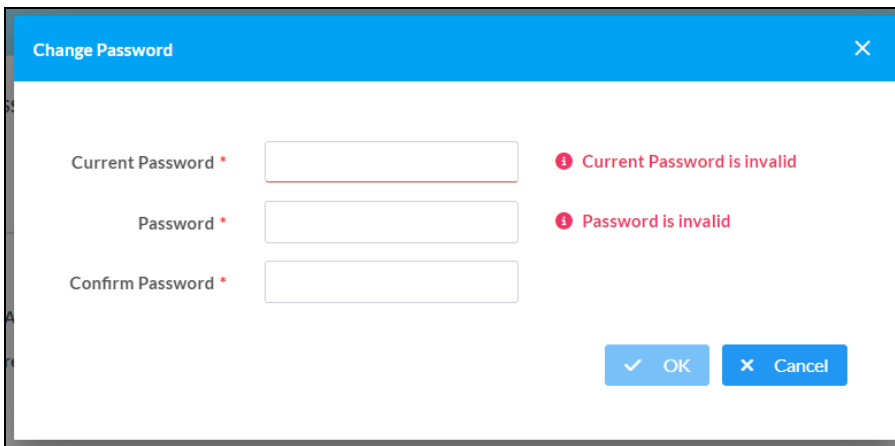
Select the **Current User** tab to view read-only information or to change the password for the current user.





To change the password for the current user account:

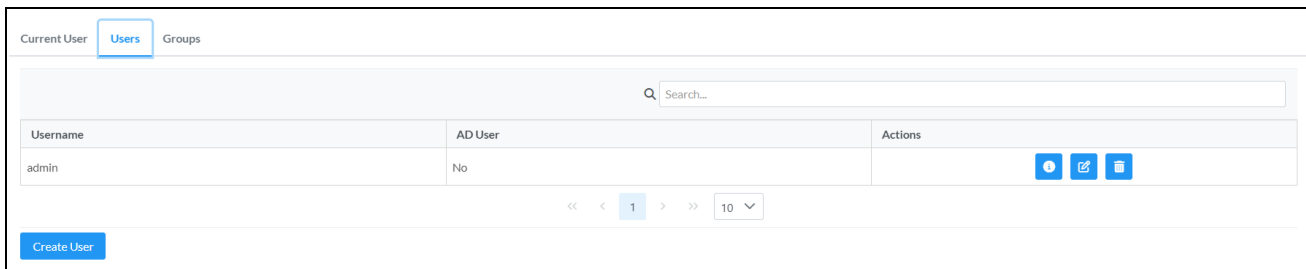
1. Select **Change Current User Password**.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

## Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.





Use the **Search Users** field to enter search term(s) and display users that match the search criteria.

If users listed in the **Users** table span across multiple pages, navigate through the list by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

- **Username:** Displays the name of the user.
- **AD User:** Displays whether the user requires authentication using Active Directory.

Select the information icon  in the **Actions** column to view detailed user information, or select the delete icon  to delete a user.

To create a new user, select **Create User**.

## Create a New Local User

To create a new local user:

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
  - c. Assign the access level by selecting one or more user groups from the **Groups** drop-down list.

**NOTE:** Make sure that the **Active Directory User** toggle is set to the left (disabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Grant Access to an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM NVX device, or add the Active Directory group(s) that they are a member of to the DM NVX device. Refer to [Grant Access to an Active Directory Group on page 569](#) for steps on granting access to a group.

To grant access to an Active Directory user directly:

1. Select **Create User**.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Select one or more groups from the **Groups** drop-down list.


**NOTE:** Make sure that the **Active Directory User** toggle is set to the right (enabled).

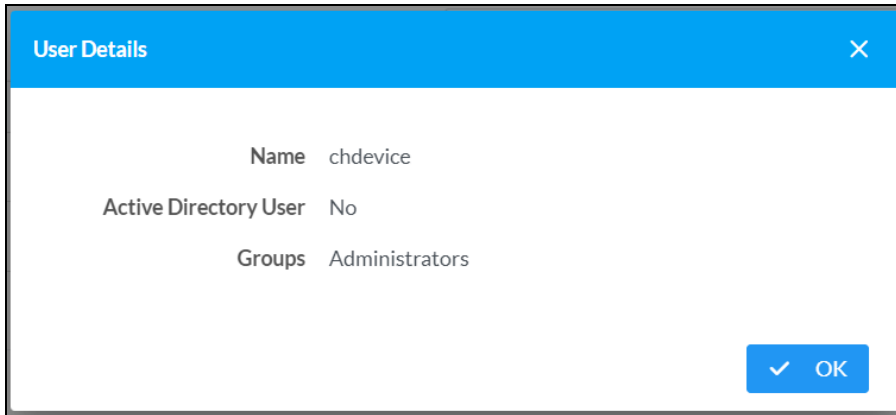
3. Select **OK** to save or select **Cancel** to cancel the changes.

## Delete a User

To delete a user, select the trashcan icon  in the **Actions** column. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

## View User Details

Select the information icon  in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.




The fields displayed in the **User Details** window are:

- **Name:** Displays the name of the selected user.
- **Active Directory User:** Displays whether the user is an Active Directory user.
- **Group:** Displays group(s) the selected user is part of.

Select **OK** to close the **User Details** window and return to the **Users** tab.

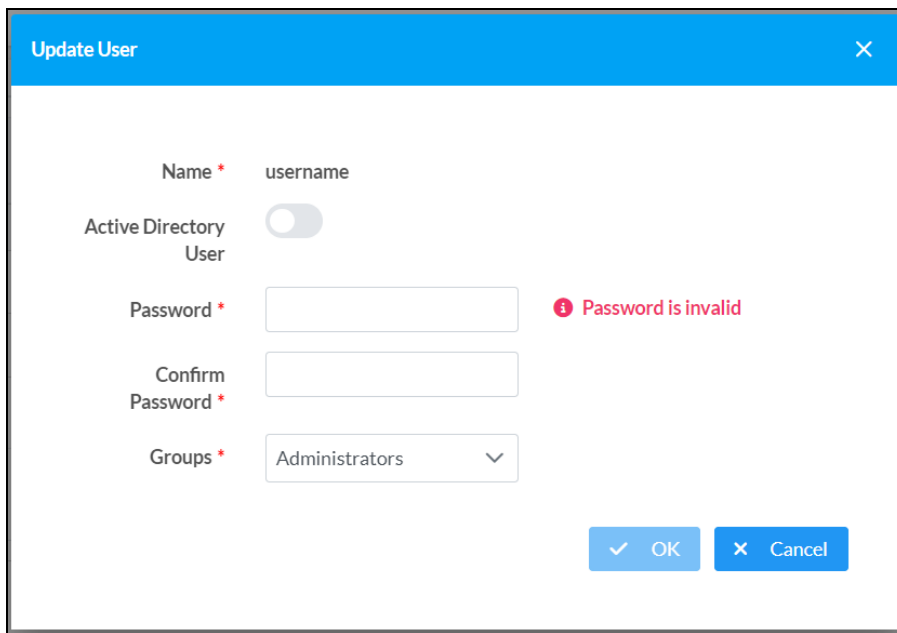
## Update User Details

To update the details for an existing user:

1. Select the edit icon  in the **Actions** column to update information for the selected user.
2. Set the **Active Directory User** toggle to the right if the user is an Active Directory user, or to the left if the user is not.
3. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
4. Select one or more groups to assign the user to from the **Groups** drop-down list. Deselect any groups to remove the user from those groups.

**NOTE:** After a user is removed from a group, they lose any access rights associated with that group.

5. Select **OK** to save or select **Cancel** to cancel the changes.



The 'Update User' dialog box contains the following fields and controls:

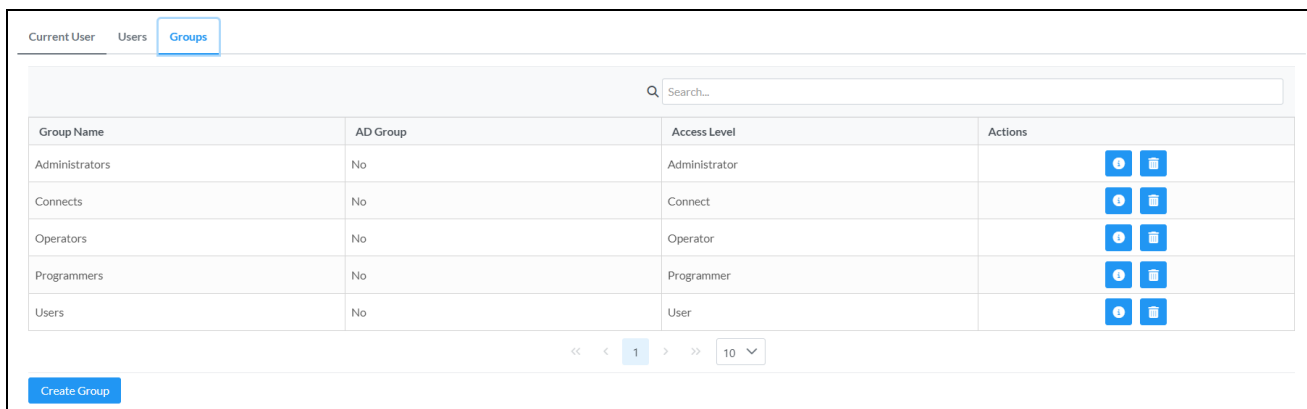
- Name \***: A read-only text field displaying 'username'.
- Active Directory User**: A toggle switch currently turned off.
- Password \***: An empty text input field with a red error message: **Password is invalid**.
- Confirm Password \***: An empty text input field.
- Groups \***: A dropdown menu with 'Administrators' selected.
- Buttons**: 'OK' and 'Cancel' buttons at the bottom right.

**NOTE:** The **Name** field is a read-only field that displays the username for the selected user. To change a username, the user must be deleted and a new user must be added.











## Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



The 'Groups' management interface includes a search bar and a table of groups. The table has the following columns: Group Name, AD Group, Access Level, and Actions.

Group Name	AD Group	Access Level	Actions
Administrators	No	Administrator	 
Connects	No	Connect	 
Operators	No	Operator	 
Programmers	No	Programmer	 
Users	No	User	 

Navigation controls at the bottom of the table include: << < 1 > >> 10 ▾



A 'Create Group' button is located at the bottom left of the interface.

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **AD Group:** Displays whether the group requires authentication using Active Directory.
- **Access Level:** Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the information icon  in the **Actions** column to view detailed group information, or select the delete icon  to delete a group.

Select **Create Group** in the **Groups** tab to create new group.

## Create a Local Group

To create a local group:

1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the left (disabled).

3. Select **OK** to save. Select **Cancel** to cancel the changes.

## Grant Access to an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing Active Directory group.

Once the group is added, all members of that group will have access to the DM NVX device.

To grant access to an Active Directory group:

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
  - a. Enter the group name in the **Name** field (for example, "Engineering Group").


**NOTE:** Group names are case sensitive, and a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the right (enabled).


4. Select **OK** to save. Select **Cancel** to cancel the changes.

## Delete a Group

Select the trashcan icon  in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

## View Group Details

Select the information icon  in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group:

- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and return to the **Groups** tab.

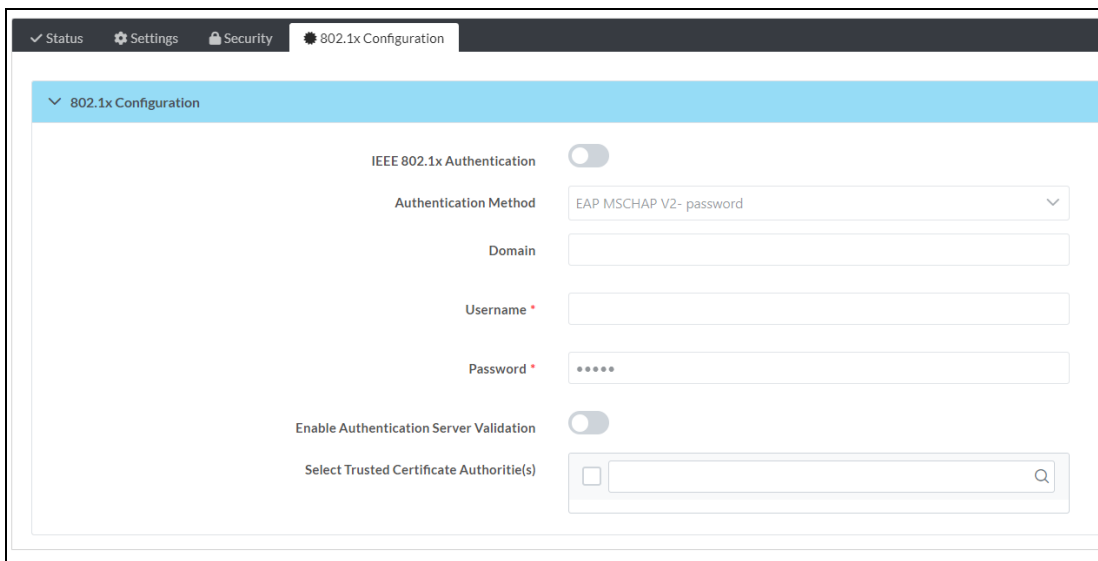
# 802.1X Configuration

**NOTE:** This section applies to the following models:

- DM-NVX-D30
- DM-NVX-D30C
- DM-NVX-E30
- DM-NVX-E30C
- DM-NVX-E760
- DM-NVX-E760C

DM NVX devices have built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs, relying on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

The **802.1X Configuration** page can be accessed at any time by selecting the **802.1X Configuration** tab of the interface.



The screenshot shows the '802.1X Configuration' page in a web interface. The page has a dark header with navigation tabs: 'Status', 'Settings', 'Security', and '802.1X Configuration'. Below the header, there is a light blue section titled '802.1X Configuration'. The main content area contains the following configuration options:

- IEEE 802.1X Authentication:** A toggle switch that is currently turned off.
- Authentication Method:** A dropdown menu with 'EAP MSCHAP V2- password' selected.
- Domain:** An empty text input field.
- Username \*:** An empty text input field.
- Password \*:** A text input field with masked characters (dots).
- Enable Authentication Server Validation:** A toggle switch that is currently turned off.
- Select Trusted Certificate Authority(ies):** A search box with a magnifying glass icon and a small square selection box to its left.

## Configure the Device for 802.1X Authentication

To configure the DM NVX device for 802.1X Authentication:

1. Set the **IEEE 802.1X Authentication** toggle to the right. This will enable all options on the 802.1X dialog.
2. Select an **Authentication Method**: Choose between **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.

3. Do one of the following:
  - a. If **EAP-TLS Certificate** was selected: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
  - b. If EAP-MSCHAP V2 Password was selected: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields, respectively. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded onto the DM NVX device.

Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu. Refer to [Action on page 510](#) for more information on the **Manage Certificates** function.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and reboot it. Select **Revert** to cancel any changes.



# Configuration (DM-NVX-D10, D20, D200, E10, and E20 Models)

**NOTE:** This section applies to the following models:

- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

## Web Interface Configuration

The web interface of a DM NVX AV-over-IP device allows for the viewing of status information as well as the configuration of local device settings.

### Access the Web Interface

To access the web interface, refer to either of the following:

- [Access the Web Interface with a Web Browser on page 574](#)
- [Access the Web Interface with the Crestron Toolbox™ Application on page 575](#)

The web interface runs in a web browser. The following web browser versions are supported:

#### Operating System and Supported Web Browsers

OPERATING SYSTEM	SUPPORTED WEB BROWSERS
Windows® operating system	Chrome™ web browser, version 31 and later Firefox® web browser, version 31 and later Internet Explorer web browser, version 11 and later Microsoft Edge web browser
macOS® operating system	Safari® web browser, version 6 and later Chrome web browser, version 31 and later Firefox web browser, version 31 and later

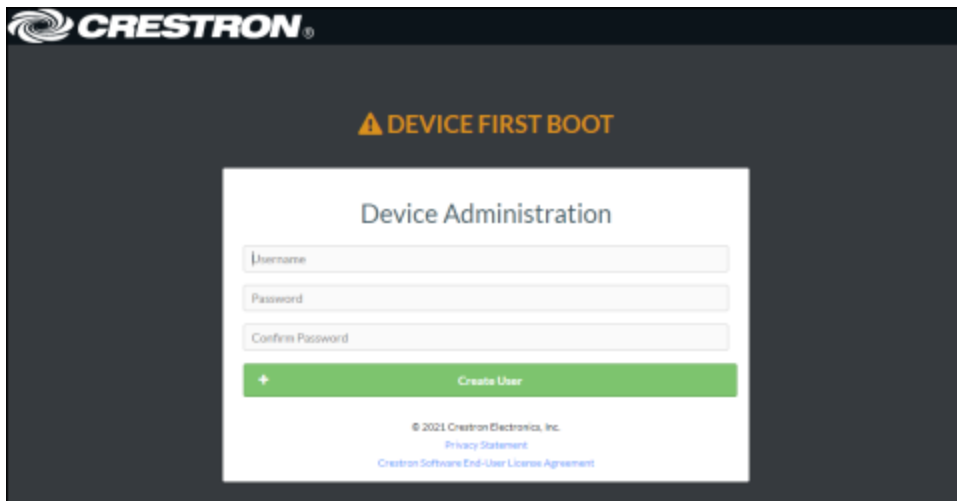
## Access the Web Interface with a Web Browser

To access the web interface:

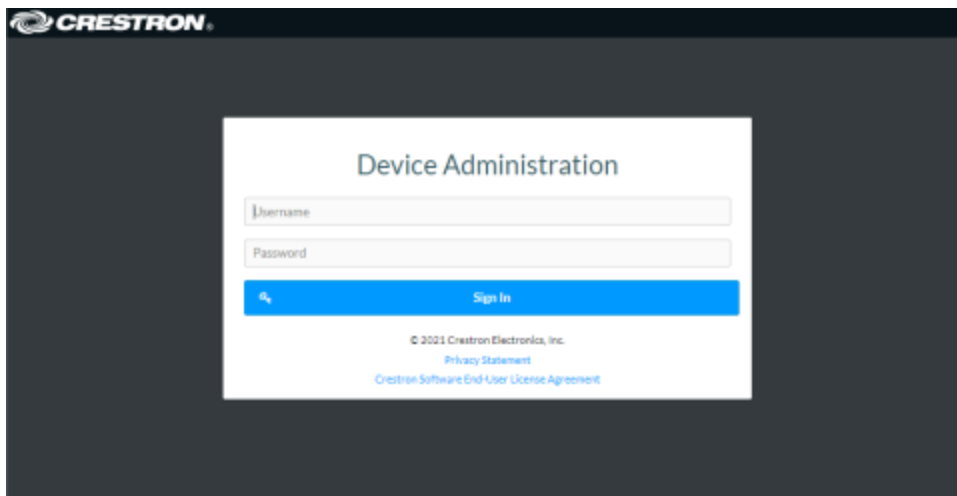
1. Enter the IP address of the DM NVX device into a web browser.

**NOTE:** To obtain the IP address, use the Device Discovery Tool utility in Crestron Toolbox™ software or an IP scanner application.

2. If accessing the device for the first time, a prompt to create an administrator account will be displayed along with a **DEVICE FIRST BOOT** message. To create the first admin account:
  - a. Enter a username in the **Username** field.
  - b. Enter a password in the **Password** field.
  - c. Re-enter the same password in the **Confirm Password** field.



- d. Select **Create User**. A new **Device Administration** page appears with an option to **Sign In** instead of **Create User**.




3. Enter the username in the **Username** field.

4. Enter the password in the **Password** field.
5. Select **Sign In**.

## Access the Web Interface with the Crestron Toolbox™ Application

To access the web interface by opening a web browser from the Crestron Toolbox™ application:

1. Open the Crestron Toolbox application.
2. Select **Device Discovery Tool** from the **Tools** menu or select the Device Discovery Tool icon  in the toolbar. Once the utility loads, the DM NVX device will be discovered on the network and listed in the device list on the left side of the screen. The device's host name, IP address, and firmware version are displayed.

**NOTE:** If there is security software running on the computer, a security alert might be displayed when the Crestron Toolbox application attempts to connect to the network. Make sure to allow the connection, so that the Device Discovery Tool can be used.

3. Select the device from the discovered devices list.
4. Enter the device credentials in the **Authentication Required** dialog that opens, then select **Log In**.
5. Select **Web Configuration**.

## Action

**NOTE:** Unless otherwise noted, this section applies to the following models:

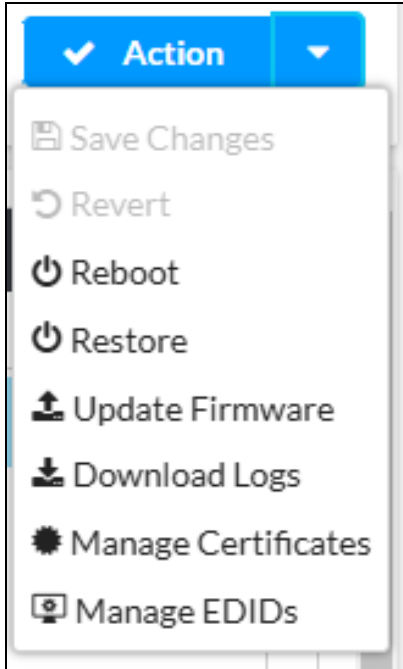
- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

For brevity, the DM-NVX-D10, DM-NVX-D20, and DM-NVX-D200 are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Action** drop-down menu is displayed at the top right side of the web interface and provides quick access to these common device functions:

- [Save Changes on page 577](#)
- [Revert on page 577](#)
- [Reboot on page 577](#)
- [Restore on page 577](#)
- [Update Firmware on page 578](#)
- [Download Logs on page 579](#)
- [Manage Certificates on page 579](#)
- [Manage EDIDs \(E Models Only\) on page 581](#)

## Action Menu (DM-NVX-E20 Shown)



### Save Changes

Select **Save Changes** to save any changes made to the configuration settings.

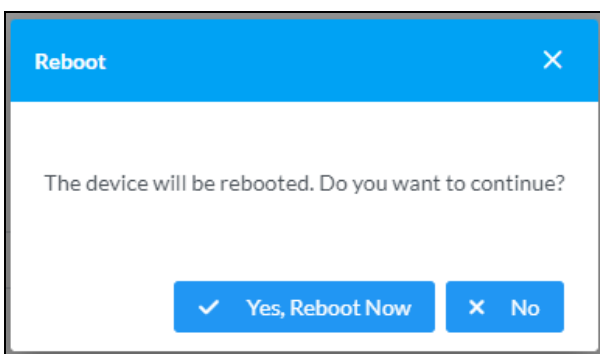
### Revert

Select **Revert** to revert the device back to the last saved configuration.

### Reboot

Certain changes to the settings may require a reboot to take effect. To reboot the device:

1. Select **Reboot** in the **Action** menu. The **Reboot** confirmation message box appears.



2. Select **Yes, Reboot Now** to reboot the device. The **Reboot** status message box appears. Wait for the device reboot to complete before attempting to reconnect to the web interface. Alternatively, select **No** to cancel the reboot operation.

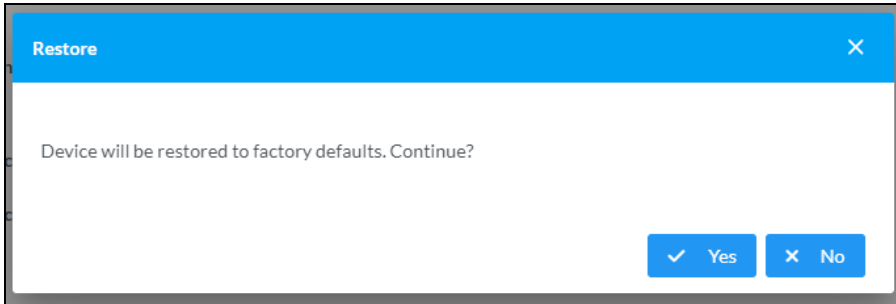
### Restore

The DM NVX device can be restored to factory default settings from the **Action** menu.

**NOTE:** The **Restore** procedure will wipe all settings from the device, including network settings. If a static IP address is set, restoring the device to factory default settings will clear this address and DHCP will be enabled instead.

To restore the device to factory defaults:

1. Select **Restore** in the **Action** menu. The **Restore** confirmation message box appears.



2. Select **Yes** to restore the device to factory default settings. Select **No** to cancel the restore operation. When **Yes** is selected, the **Restore** status message box appears. Wait for the device restore to complete before attempting to reconnect to the web interface.

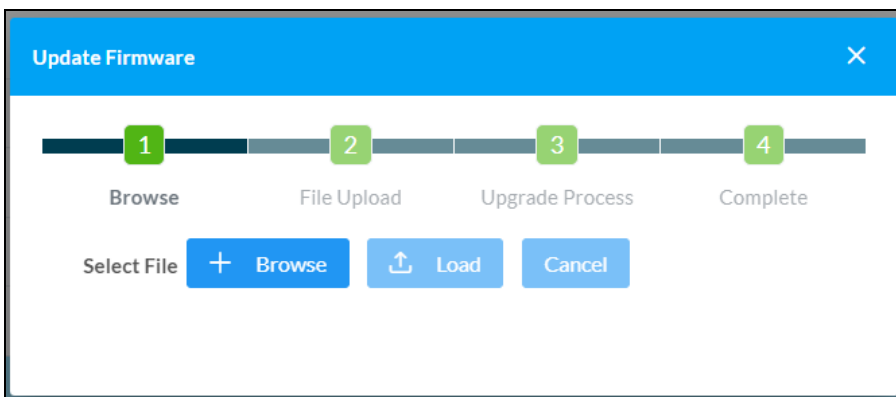
**NOTE:** Once the device is restored, it may have a new IP address. If reconnecting to the original address does not work, use the Device Discovery Tool in Crestron Toolbox software or an IP scanner application to find the device's new IP address.

If the web interface is not accessible, the device can also be restored to factory default settings via a hardware-based procedure (refer to [DM-NVX-D10](#), [DM-NVX-D20](#), [DM-NVX-E10](#), and [DM-NVX-E20 Installation on page 285](#), [DM-NVX-D200 Installation on page 291](#), or [DM-NVX-E20-2G Installation on page 297](#)).

## Update Firmware

To update the firmware of the device:

1. Select **Update Firmware** in the **Action** menu.
2. In the **Update Firmware** window that appears, select **+ Browse**.



3. Locate and select the desired firmware file, then select **Open**. The selected firmware file name is displayed in the **Update Firmware** window.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The firmware update is now complete, and the web interface will return to the main log-in page.

## Download Logs

Select **Download Logs** in the **Action** menu to download the device message logs for diagnostic purposes.

The log file is downloaded to the Downloads folder of the PC.

## Manage Certificates

Select **Manage Certificates** in the **Action** menu to open the **Manage Certificates** window. Use this window to add or remove certificates used in 802.1x authentication and other protected network functions.

The screenshot shows the 'Manage Certificates' window with a blue header and a close button. Below the header are tabs for 'Root', 'Intermediate', 'Machine', and 'Web Server'. A search bar is located above a table of certificates. The table has three columns: 'Name', 'Expiry Date', and 'Actions'. Each row in the table includes a blue trash icon in the 'Actions' column. Below the table is a pagination control showing page 1 of 5, and an 'Add Root Certificate' button is located at the bottom left.

Name	Expiry Date	Actions
AAA Certificate Services	Dec 31 23:59:59 2028	
AC RAIZ FNMT-RCM	Jan 1 00:00:00 2030	
AC RAIZ FNMT-RCM SERVIDORES SEGUROS	Dec 20 09:37:33 2043	
ACCVRAIZ1	Dec 31 09:37:37 2030	
Actalis Authentication Root CA	Sep 22 11:22:02 2030	
AffirmTrust Commercial	Dec 31 14:06:06 2030	
AffirmTrust Networking	Dec 31 14:08:24 2030	

The following certificate tabs are available in the **Manage Certificates** window:

- **Root:** The Root certificate is used by the DM NVX device to validate the network's authentication server. The device has a variety of Root certificates, self-signed by trusted CAs (Certificate Authorities) preloaded into the device. Root certificates must be self-signed.
- **Intermediate:** The Intermediate store holds non self-signed certificates that are used to validate the authentication server. These certificates will be provided by the network administrator if the network does not use self-signed Root certificates.
- **Machine:** The Machine certificate is an encrypted PFX file that is used by the authentication server to validate the identity of the DM NVX device. The machine certificate will be provided by the network administrator, along with the certificate password. For 802.1x, only one machine certificate can reside on the device.
- **Web Server:** The Web Server certificate is a digital file that contains information about the identity of the web server.

## Add Certificates

To add a certificate:


1. Select the corresponding certificate tab.
2. Select **Add [Type] Certificate**.
3. Select **+ Browse**.
4. Locate and select the file, then select **Open**.

**NOTE:** If the selected certificate is a machine certificate, enter the password provided by the network administrator.

5. Select **OK**. This will add the certificate to the list in the **Manage Certificates** window, displaying the file name and expiration date. The certificate is now available for selection and can be loaded to the device.

## Delete Certificates

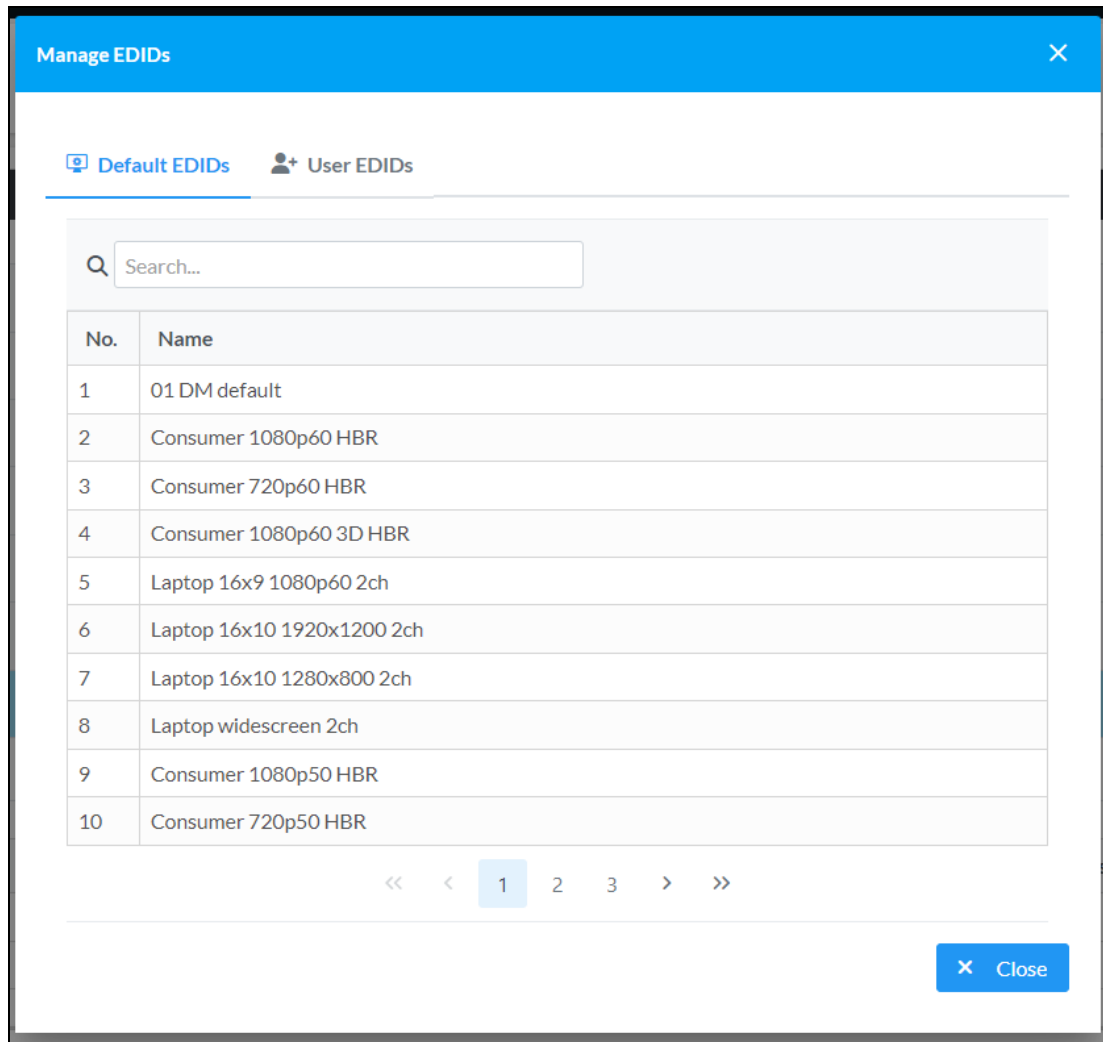
To delete a certificate:

1. Select the corresponding certificate tab.
2. Select the trashcan icon  in the **Actions** column and the row of the certificate to be deleted.
3. Select **Yes** when prompted to delete the certificate or **No** to cancel the deletion.



## Manage EDIDs (E Models Only)

Select **Manage EDIDs** in the **Action** menu to open the **Manage EDIDs** window. Use this window to add, remove, or browse which EDIDs are available for the AV inputs of the DM NVX device.



The default tab that will open in this window is the **Default EDIDs** tab. This tab is read only, and provides a list of all default EDIDs available on the DM NVX device as part of the firmware. Use the **Search...** text entry field to filter the list of EDIDs by name. Default EDIDs cannot be removed from the device.

The second tab available in this window is the **User EDIDs** tab. By default, the table will populate with **No records found**.

Manage EDIDs

Default EDIDs User EDIDs

Search... + Add EDID

No.	Name	Actions
No records found		

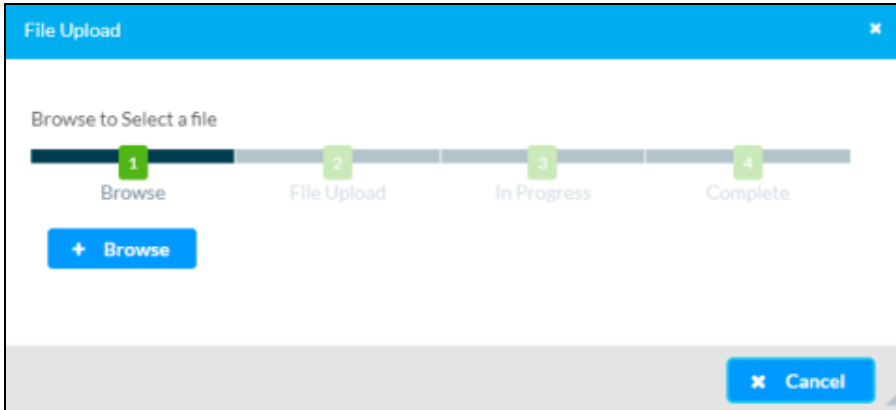
<< < 1 > >>

Close

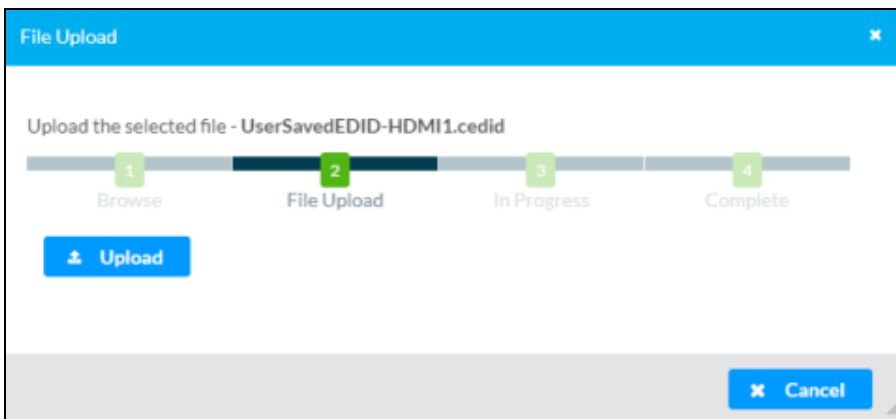
To add a **User EDID** file:

1. Select **+ Add EDID** at the top right of the table. The **File Upload** screen will appear.
2. Select **+ Browse**. Locate the desired .cedid file, then select **Upload** to upload it to the DM NVX device.

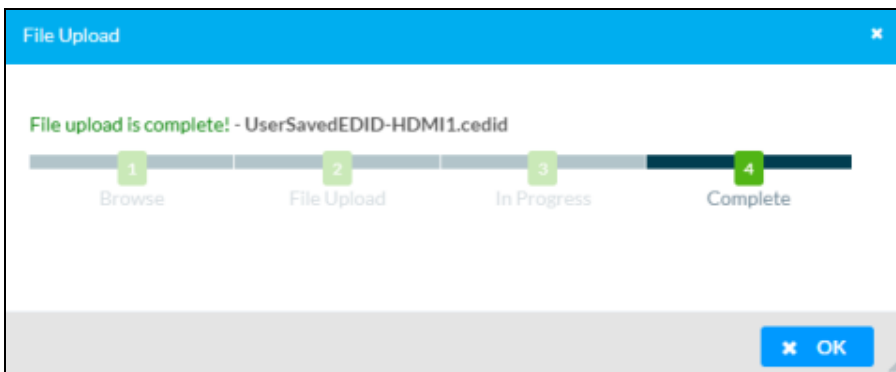
**Browse for and select a .cedid file**



**Upload the selected file**



**Wait for the upload to complete, then select OK**



3. Select **OK** to return to the **Manage EDIDs** window. The uploaded User EDID is now displayed in the table.

To remove a **User EDID** file, select **Delete** in its table row.

# Status

**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

For brevity, the DM-NVX-D10, DM-NVX-D20, and DM-NVX-D200 are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Status** page is the first page displayed when opening the interface of the DM NVX device. It displays general information about the device (such as **Model Name**, **Firmware Version**, and **Serial Number**), current network settings (such as **Host Name** and **IP Address**), and the current status of the connectors on the device.

The **Status** page can be accessed at any time by selecting the **Status** tab of the interface.

## Status Page (DM-NVX-E20 Shown)

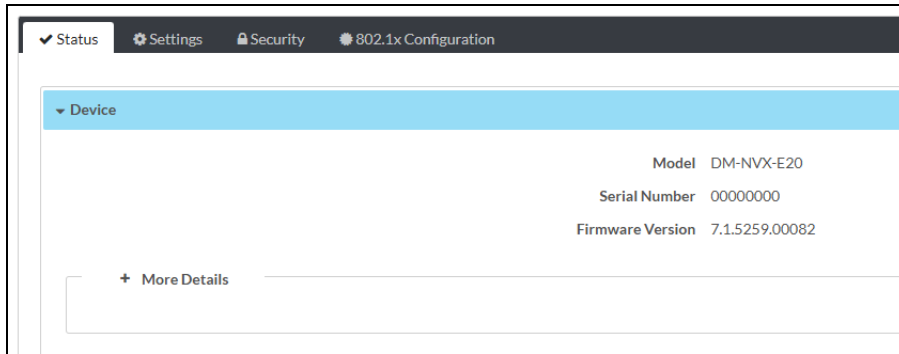


Information displayed on the **Status** page is organized into different sections:

- [Device on page 585](#)
- [Network on page 585](#)
- [DM NVX Director on page 586](#)
- [DM NAX \(AES67\) Audio on page 586](#)
- [Control System on page 588](#)
- text
- text

## Device

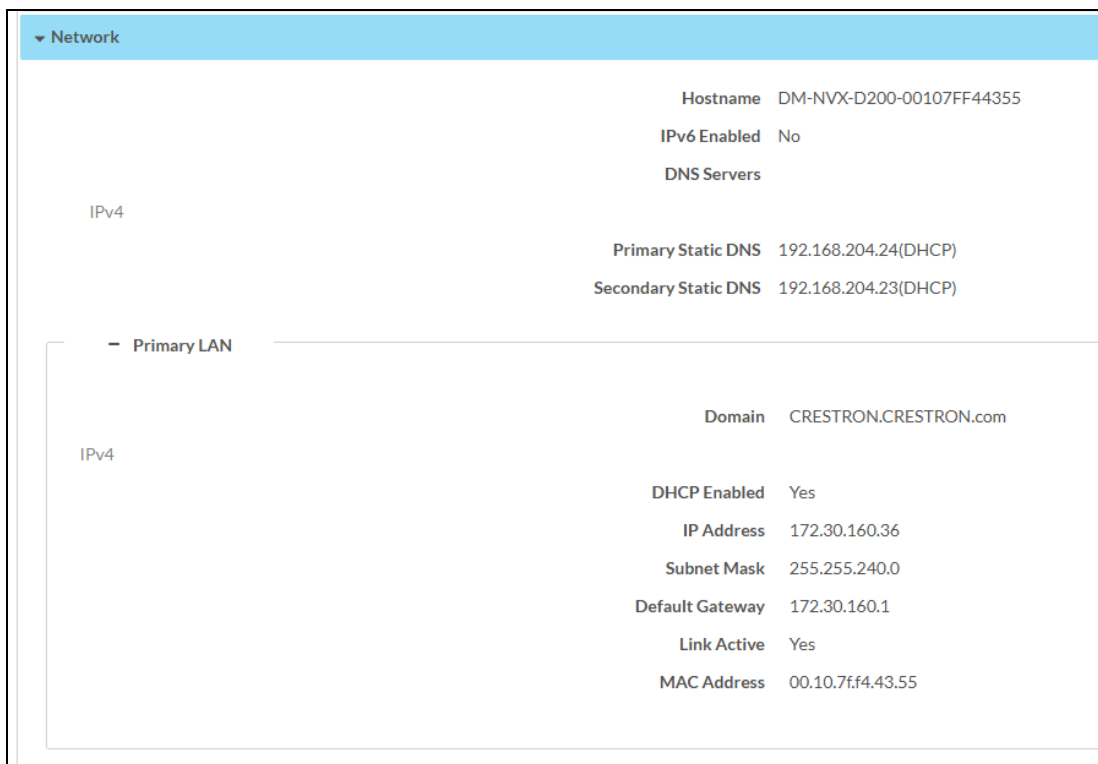
The **Device** accordion displays the **Model**, **Firmware Version**, and **Serial Number** of the DM NVX device.



Select **+ More Details** to review additional information about the device.

## Network

The **Network** accordion displays network-related information about the device, including the **Hostname**, **Domain Name**, and **DNS Servers**.



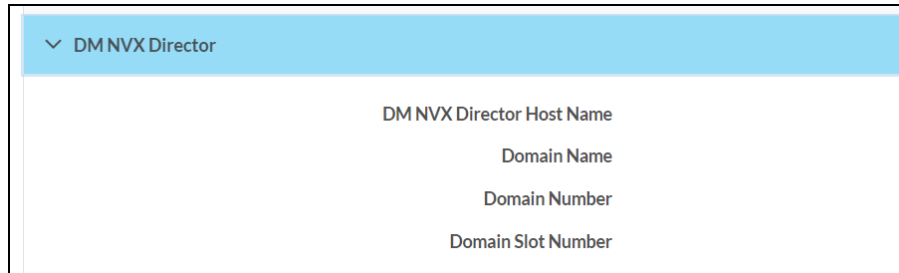
By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-D200-00107FF44355.

Select **+ Primary LAN** to display additional network information. If **+ Primary LAN** is selected, select **- Primary LAN** to collapse the section.

## DM NVX Director

The **DM NVX Director** accordion displays the details of the DM NVX Director switching appliance to which the DM NVX device is claimed.

**NOTE:** If the DM NVX device has not been claimed by a DM NVX Director switching appliance, all fields in this section will be empty.



- **DM NVX Director Host Name:** Displays the host name of the claiming DM NVX Director switching appliance.
- **Domain Name:** Displays the name of the DM NVX Director domain to which the encoder or decoder device belongs.
- **Domain Number:** Displays the number of the DM NVX Director domain to which the encoder or decoder device belongs.
- **Domain Slot Number:** Displays the slot number within the DM NVX Director that refers to this specific encoder or decoder device.

## DM NAX (AES67) Audio

The **DM NAX (AES67) Audio** accordion displays information regarding the **DM NAX (AES67) Transmit** and **DM NAX (AES67) Receive** audio-over-IP (AoIP) signals. This accordion varies slightly between D models and E models.

## DM NAX (AES67) Audio (DM-NVX-E20 Shown)

The screenshot shows a web interface for configuring DM NAX (AES67) Audio. It is divided into two sections: 'DM NAX (AES67) Transmit' and 'DM NAX (AES67) Receive'. The Transmit section shows a status of 'Stream Started', an audio mode of 'Automatic', a port of 4570, a session name of 'Stream01c4.42.68.63.4d.74', and a multicast address of 239.239.28.21. The Receive section shows a status of 'Stream Stopped', a port of 4570, and a multicast address of 0.0.0.0.

DM NAX (AES67) Transmit	
Status	Stream Started
DM NAX (AES67) Audio Mode	Automatic
Port	4570
Session Name	Stream01c4.42.68.63.4d.74
Multicast Address	239.239.28.21

DM NAX (AES67) Receive	
Status	Stream Stopped
Port	4570
Multicast Address	0.0.0.0

The **DM NAX (AES67) Audio Mode** field will be under the **DM NAX (AES67) Receive** heading if the device is a decoder (D model) or under the **DM NAX (AES67) Transmit** heading if the device is an encoder (E model). This field displays whether the transmitting AoIP stream is set to **Automatic** (the AoIP multicast address is automatically set as the next available multicast address after the video stream's address), **Manual** (the AoIP multicast address is manually set), or **Disabled** (AoIP transmit is disabled).

The details displayed for **DM NAX (AES67) Transmit** are:

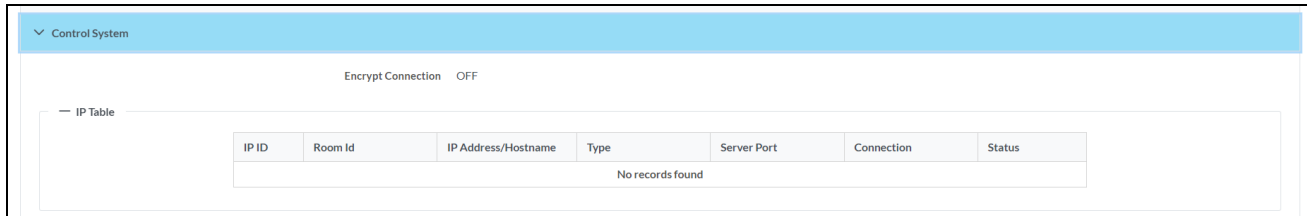
- **Status:** Displays a status message for the transmitting AoIP stream, such as **Stream Stopped**, **Stream Starting**, or **Stream Started**.
- **Port:** Displays the port of the AoIP transmit stream.
- **Session Name:** Displays the session name of the AoIP transmit stream.
- **Multicast Address:** Displays the multicast address of the AoIP transmit stream.

The details displayed for **DM NAX (AES67) Receive** are:

- **Status:** Displays a status message for the AoIP stream receiver, such as **Connecting**, **Stream Stopped**, or **Stream Started**.
- **Port:** Displays the port of the received AoIP stream.
- **Multicast Address:** Displays the multicast address of the received AoIP stream.

## Control System

The **Control System** accordion displays information regarding the connection between the DM NVX device and a control system.

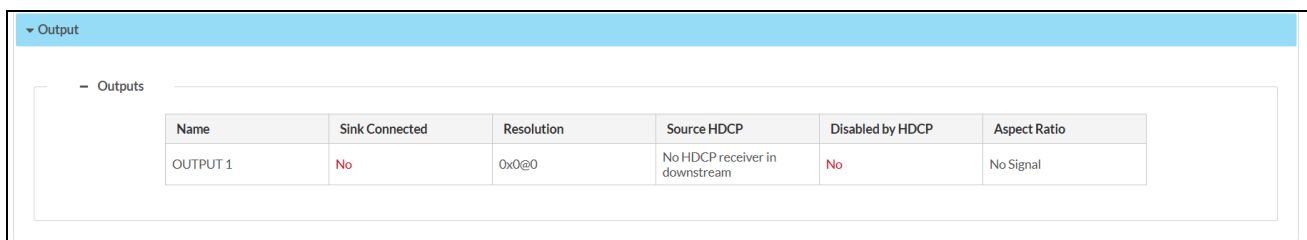


The screenshot shows a web interface for the Control System. At the top, there is a blue header with a dropdown arrow and the text "Control System". Below the header, there is a section for "Encrypt Connection" which is currently set to "OFF". Underneath, there is a section for "IP Table" which contains a table with the following columns: IP ID, Room Id, IP Address/Hostname, Type, Server Port, Connection, and Status. The table is currently empty, with the text "No records found" centered below the column headers.

The displayed fields are:

- **Encrypt Connection:** Displays **ON** if the connection is encrypted or **OFF** if it is not.
- **IP ID:** Displays the IP ID of the DM NVX device in its IP table entry of the control system's IP table.
- **Room ID:** Displays the room ID of the DM NVX device in its IP table entry of the control system's IP table.
- **IP Address/Hostname:** Displays the IP address and host name of the control system.
- **Type:** Always displays **Peer** (this is the only relationship the DM NVX device can have to a control system).
- **Server Port:** Displays the port for the connection between the DM NVX device and the control system.
- **Connection:** Always displays **Gway** (this is the only connection type supported between a DM NVX device and a control system).
- **Status:** Displays either **ONLINE** or **OFFLINE** depending on if the DM NVX device is able to communicate with the control system.

## Output (D Models Only)



The screenshot shows a web interface for the Output section. At the top, there is a blue header with a dropdown arrow and the text "Output". Below the header, there is a section for "Outputs" which contains a table with the following columns: Name, Sink Connected, Resolution, Source HDCP, Disabled by HDCP, and Aspect Ratio. The table has one row with the following data: Name: OUTPUT 1, Sink Connected: No, Resolution: 0x0@0, Source HDCP: No HDCP receiver in downstream, Disabled by HDCP: No, Aspect Ratio: No Signal.

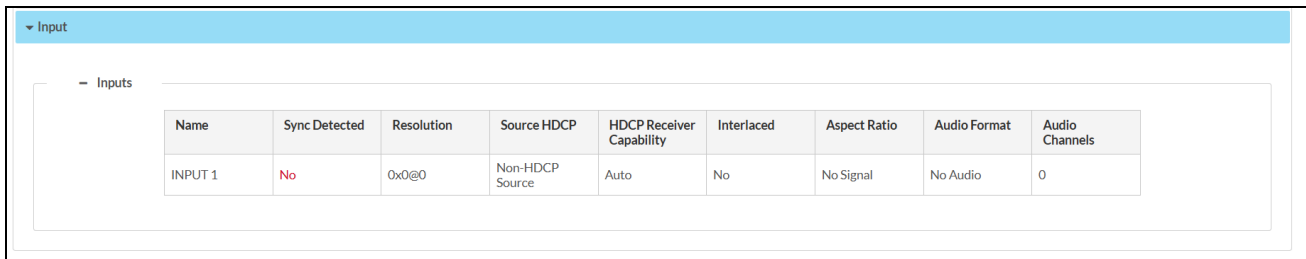
The displayed fields are:

- **Name:** Displays the name of the output.
- **Sink Connected:** Displays whether a sink (such as a display or projector) is connected to the output (**Yes**) or not (**No**).
- **Resolution:** Displays the current resolution of the video output signal.
- **Source HDCP:** Displays the HDCP level supported by the connected display or projector.
- **Disabled by HDCP:** Displays whether the output is disabled by HDCP (**Yes**) or not (**No**).
- **Aspect Ratio:** Displays the aspect ratio of the video output signal.



## Input (E Models Only)

The **Input** accordion displays status information regarding the HDMI input connector.



Name	Sync Detected	Resolution	Source HDCP	HDCP Receiver Capability	Interlaced	Aspect Ratio	Audio Format	Audio Channels
INPUT 1	No	0x0@0	Non-HDCP Source	Auto	No	No Signal	No Audio	0

The displayed fields are:

- **Name:** Displays the name of the input.
- **Sync Detected:** Displays whether sync is detected at the input (**Yes**) or not (**No**).
- **Resolution:** Displays the resolution and refresh rate of the input video signal.
- **Source HDCP:** Displays the HDCP level of the input video signal.
- **HDCP Receiver Capability:** Displays the HDCP capabilities of the DM NVX device.
- **Interlaced:** Displays **Yes** or **No** depending if the input video signal is interlaced or not.
- **Aspect Ratio:** Displays the aspect ratio of the input video signal.
- **Audio Format:** Displays the audio format of the input signal.
- **Audio Channels:** Displays the number of audio channels in the input signal.

# Settings

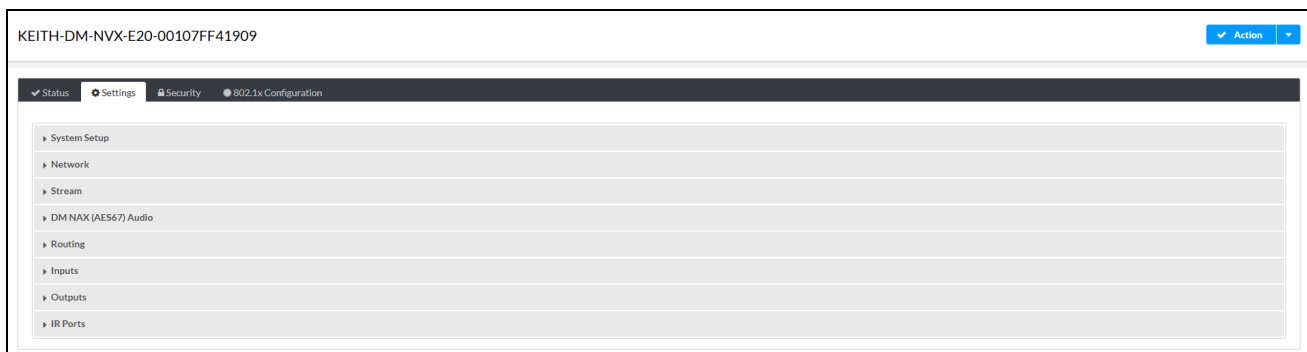
**NOTE:** Unless otherwise noted, this section applies to the following models:

- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

For brevity, the DM-NVX-D10, DM-NVX-D20, and DM-NVX-D200 are referred to as the D models, and the remainder are referred to as the E models in this section.

The **Settings** page enables configuration of the DM NVX device's settings. The **Settings** page can be accessed at any time by selecting the **Settings** tab of the interface.

## Settings Page (DM-NVX-E20 Shown)



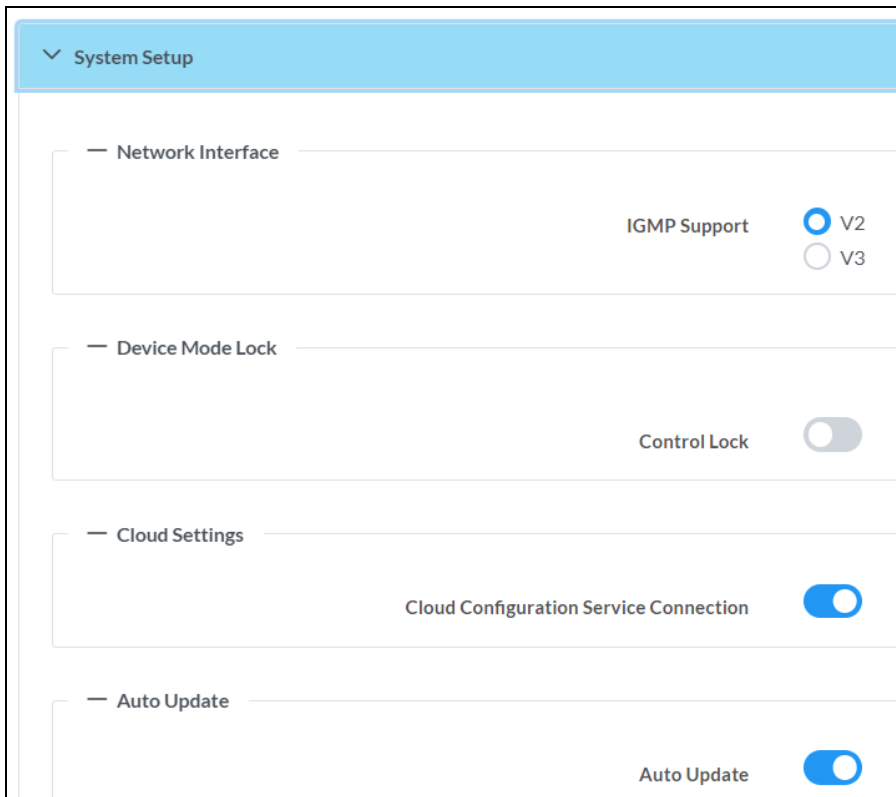
**NOTE:** Some settings are specific to the decoder (D models) or encoder (E models) interface. Model requirements are noted in headings below where appropriate.

Settings available on the **Settings** page are organized into different sections:

- [System Setup on page 591](#)
- [Network on page 597](#)
- [Stream on page 598](#)
- [DM NAX \(AES67\) Audio on page 603](#)
- [Routing on page 605](#)
- [Subscriptions \(D Models Only\) on page 608](#)
- [Inputs \(E Models Only\) on page 610](#)
- [Outputs on page 612](#)
- [IR Ports on page 617](#)

## System Setup

The **System Setup** accordion contains settings for configuration of the following system functions.

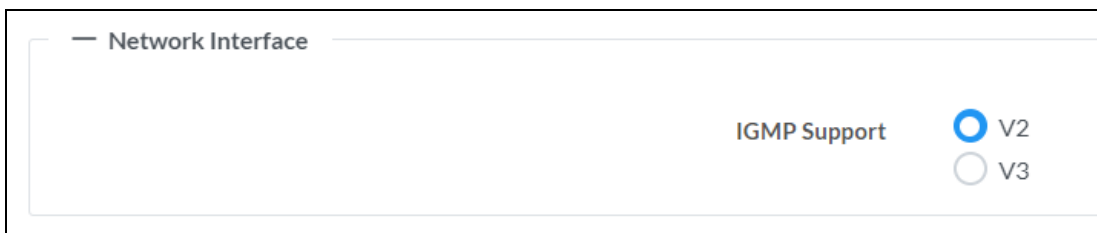


### Network Interface

The **Network Interface** section provides a choice between IGMPv2 and IGMPv3 operation. Choose the settings that matches the capabilities of the network hardware.

#### NOTES:

- This setting must match on all DM NVX devices in a system to ensure compatibility.
- DM NVX devices are set to IGMPv2 operation by default.
- Crestron recommends leaving DM NVX systems set to IGMPv2 operation unless the network specifically requires IGMPv3.

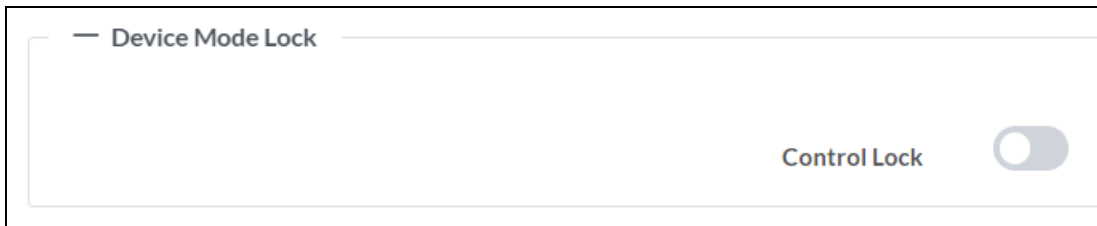


To change the **Network Interface** mode:

1. Select **V2** to set the DM NVX device to IGMPv2 operation, or select **V3** to set the device to IGMPv3 operation.
2. Select **Save Changes**. A prompt will appear to reboot the device.
3. Select **Yes, Reboot Now** to reboot the device into the new **Network Interface** mode.

## Device Mode Lock

The **Device Mode Lock** section provides a toggle for the **Control Lock** feature.

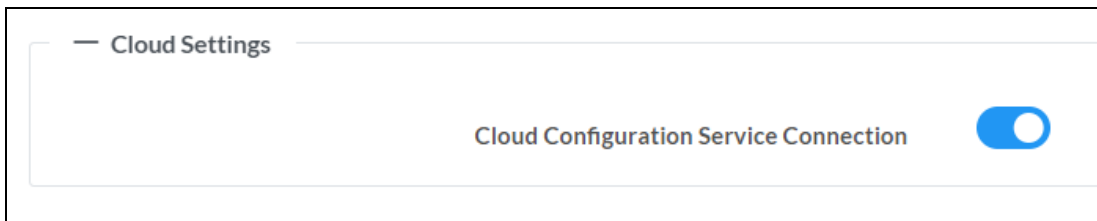


Set the **Control Lock** toggle to the right to lock out the push buttons built in to the DM NVX device.

Set the **Control Lock** toggle to the left to disable the lock, allowing the push buttons to control source routing and device modes.

## Cloud Settings

The Cloud Settings section provides a toggle to enable or disable communication with the Crestron XiO Cloud® platform.

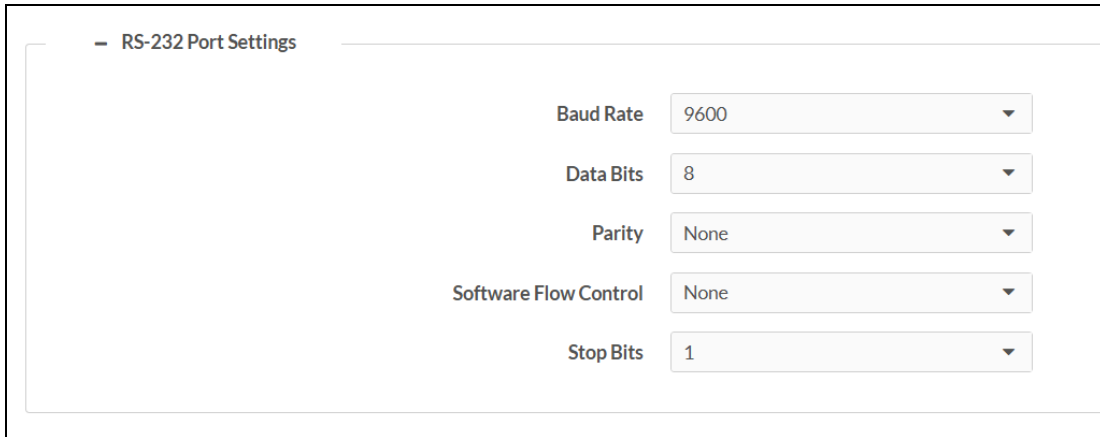


Set the **Cloud Configuration Service Connection** toggle to the right to allow the DM NVX device to communicate with the XiO Cloud platform. Set the toggle to the left to prevent the device from communicating with the XiO Cloud platform.

## RS-232 Port Settings

**NOTE:** This accordion is not available on DM-NVX-E20-2G models.

Configure the settings for the built-in RS-232 port of the device in the **RS-232 Port Settings** section.



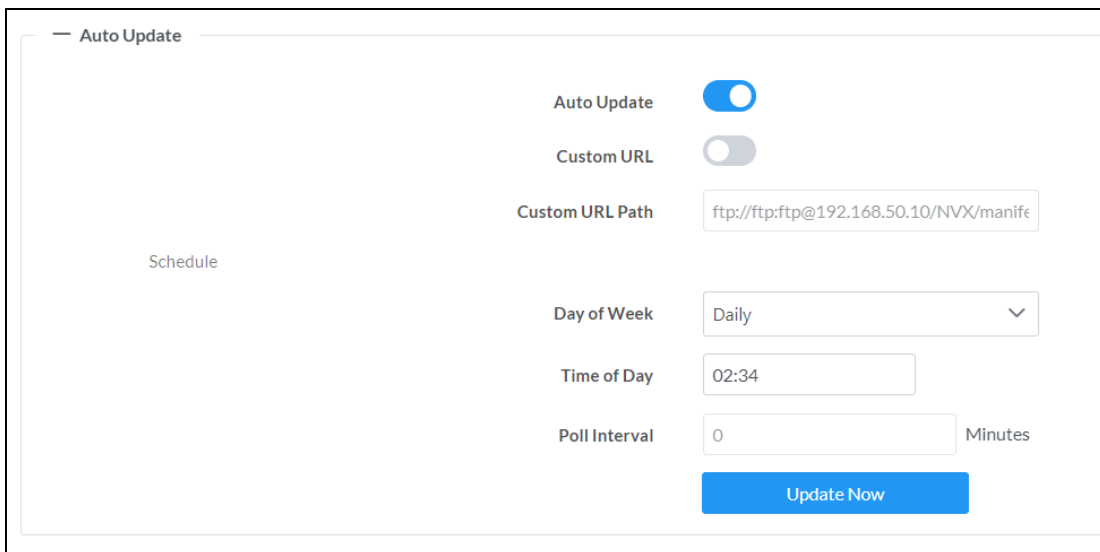
The screenshot shows the 'RS-232 Port Settings' configuration page. It contains five dropdown menus for the following settings:

- Baud Rate:** 9600
- Data Bits:** 8
- Parity:** None
- Software Flow Control:** None
- Stop Bits:** 1

- **Baud Rate:** Select the baud rate from the drop-down.
- **Data Bits:** Select the number of data bits from the drop-down.
- **Parity:** Select the parity from the drop-down.
- **Software Flow Control:** Select the software flow control from the drop-down.
- **Stop Bits:** Select the number of stop bits from the drop-down.

## Auto Update

The DM NVX device can automatically check for and install firmware updates at scheduled intervals via the **Auto Update** feature.



The screenshot shows the 'Auto Update' configuration page. It includes the following settings:

- Auto Update:** Enabled (toggle switch)
- Custom URL:** Disabled (toggle switch)
- Custom URL Path:** ftp://ftp:ftp@192.168.50.10/NVX/manife
- Schedule:**
  - Day of Week:** Daily
  - Time of Day:** 02:34
  - Poll Interval:** 0 Minutes
- Update Now:** A blue button to manually trigger an update.

To configure the **Auto Update** feature settings:

1. Set the **Auto Update** toggle to the right to enable the **Auto Update** feature.
2. Define the URL to download the updates by doing either of the following:
  - a. Use the default URL to download the updates from the Crestron server.
  - b. Use a custom URL. Set the **Custom URL** toggle to the right to enable a custom URL. In the **Custom URL Path** text box, enter the path to a custom manifest file in the FTP or SFTP URL format. Use the Crestron Auto Update Tool to generate a custom manifest file, then store the file on an FTP (File Transfer Protocol) or SFTP (Secure File Transfer Protocol) server.
3. Set a schedule for the automatic firmware update by doing either of the following:
  - a. Select the desired **Day of Week** and **Time of Day** (24-hour format) values.
  - b. Set the **Poll Interval** by entering a value from 60 to 65535 minutes. A value of 0 disables the **Poll Interval**.
4. Select **Save Changes**.

Selecting **Update Now** causes the device to check for a firmware update immediately. If a schedule was set in step 3 above, that schedule still remains in effect.

## Date/Time

Use the **Date/Time** section to configure the date and time settings of the DM NVX device.

— Date/Time

Synchronization

Time Synchronization

[Synchronize Now](#)

NTP Time Servers

<input type="checkbox"/>	Address	Port	Authentication Method	Authentication Key	Key ID
<input type="checkbox"/>	pool.ntp.org	123	None	*****	0

[+ Add](#) [- Remove](#)

Configuration

Time Zone: (UTC-05:00) Eastern Time (US & Can) ▼

Date: 09/30/2024

Time: 07:58

## Synchronization

1. Set the **Time Synchronization** toggle to the right to enable or left to disable time synchronization. By default, time synchronization is enabled.
2. In the **NTP Time Servers** table, enter the URL of a NTP (Network Time Protocol) or SNTP (Simple Network Time Protocol) server. Up to three time servers can be added on a device.
3. Select **Synchronize Now** to perform time synchronization between the device's internal clock and the time server.

## Configuration

1. Open the **Time Zone** drop-down menu to select the applicable time zone.
2. In the **Date** field, enter the current date.

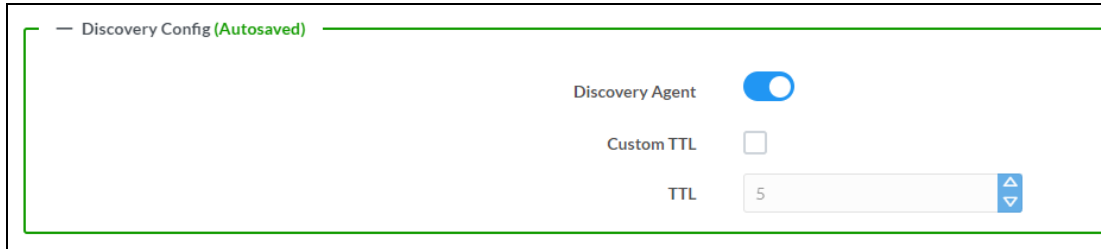
3. In the **Time (24hr Format)** field, enter the current time in 24-hour format.

Select **Save Changes** to save the settings.

Select **Revert** from the **Action** drop-down menu to revert to the previous settings without saving.

## Discovery Config

The **Discovery Config** section provides settings to customize how the DM NVX device and its streams can be discovered on the LAN.



Discovery Config (Autosaved)

Discovery Agent

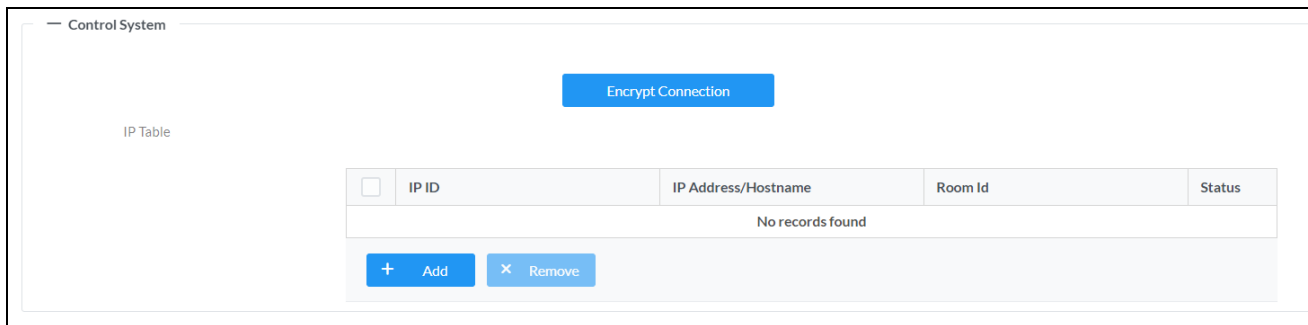
Custom TTL

TTL 5

Set the **Discovery Agent** toggle to the right to allow streams from the device to be discoverable on the network or to the left to prevent network discovery. When **Discovery Agent** is enabled, the streams from the DM NVX device are displayed in the **Available Streams** list of other receivers.

Select the **Custom TTL** option and enter a value in the **TTL** field if a custom Time-to-live (TTL) value is required on the network. The default **TTL** value is 5.

## Control System



Control System

Encrypt Connection

IP Table

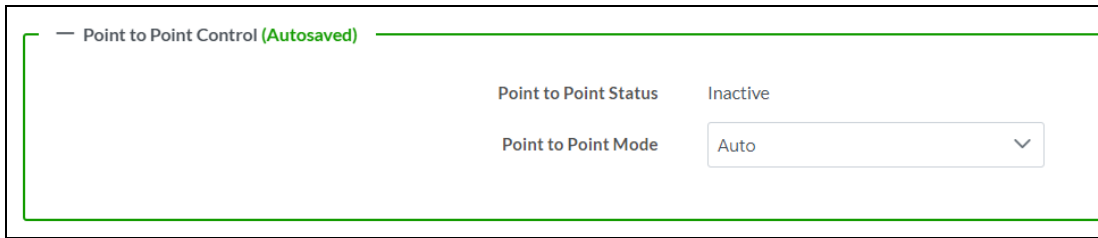
<input type="checkbox"/>	IP ID	IP Address/Hostname	Room Id	Status
No records found				

+ Add x Remove

1. Select **Encrypt Connection** to navigate to the **Security** tab to configure encryption settings.
  - a. Enter a username in the **Control System Username** field.
  - b. Enter a password in the **Control System Password** field.
2. Select **+ Add** to add an IP table entry to the **IP Table**.
  - a. Enter the Room ID in the **Room ID** field.
  - b. Enter the IP ID of the DM NVX device in the **IP ID** field.
  - c. Enter the IP address or hostname of the control system in the **IP Address/Hostname** field.
3. Select **Save Changes** to save the new entries. The **Control System Save** message box appears, indicating that the control system settings were saved successfully. Select **Revert** to revert to the previous settings without saving.

## Point to Point Control

The **Point to Point Control** section allows enabling or disabling point-to-point streaming of AV-over-IP between this device and another directly-connected DM NVX device without the need for a control system.



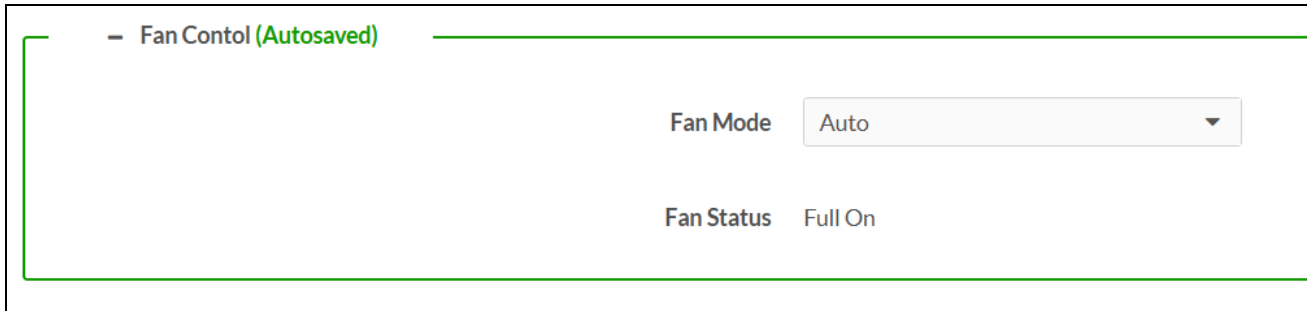
The screenshot shows a configuration panel titled "Point to Point Control (Autosaved)". It contains two fields: "Point to Point Status" with the value "Inactive" and "Point to Point Mode" with a dropdown menu set to "Auto".

**Point to Point Status** is a read-only field that indicates whether point-to-point mode is **Active** or **Inactive**.

Select an option from the **Point to Point Mode** drop-down:

- **Auto:** (Default setting) Each 1000BASE-T port of the device detects whether it is connected directly to another DM NVX device or to a 1000BASE-T switch. If a direct connection between a DM NVX encoder and decoder is detected, point-to-point streaming is automatically initiated.
- **Disable:** Disables point-to-point streaming.

## Fan Control (DM-NVX-D200 Only)



The screenshot shows a configuration panel titled "Fan Control (Autosaved)". It contains two fields: "Fan Mode" with a dropdown menu set to "Auto" and "Fan Status" with the value "Full On".

Select an option from the **Fan Mode** drop-down:

- **Auto:** The fan automatically turns on when either of these conditions are met:
  - A video stream is present.
  - The internal temperature of the device exceeds the normal operating range.
- **Always On:** The fan runs continuously regardless of video stream status and internal temperature.

**Fan Status** is a read-only field that will either read **Full On** to indicate that the fan is running or **Off** to indicate that the fan is not running.



## Network

The **Network** accordion contains network-related settings for the DM NVX device, including the **Hostname**, **Domain**, **Primary Static DNS**, and **Secondary Static DNS**.

The screenshot shows the Network configuration interface. At the top, the 'Network' accordion is expanded. Below it, the 'IPv6' section is visible with a 'Hostname' field containing 'DM-NVX-D200-00107FF44355' and an 'IPv6 Enabled' toggle switch that is currently turned off. Below the IPv6 section, the 'Primary Static DNS' field contains '192.168.204.24(DHCP)' and the 'Secondary Static DNS' field contains '192.168.204.23(DHCP)'. The 'Primary LAN' section is expanded, showing a 'Domain' field with 'CRESTRON.CRESTRON.com', a 'DHCP Enabled' toggle switch that is turned on, and fields for 'IP Address' (172.30.160.36), 'Subnet Mask' (255.255.240.0), and 'Default Gateway' (172.30.160.1). The 'Secondary LAN' section is collapsed.

**NOTE:** By default, the host name of the device consists of the model name followed by the MAC address of the device. For example, DM-NVX-D200-00107FF44355.

### Primary LAN

The **Primary LAN** subheading contains settings for **DHCP**, **IP Address**, **Subnet Mask**, and **Default Gateway** of the Ethernet adapter.

Set the **DHCP** toggle to the right to enable **DHCP** or left to disable **DHCP**. This determines whether the IP address of the **Primary LAN** port is to be assigned by a DHCP (Dynamic Host Configuration Protocol) server.

- **Enabled:** When DHCP is enabled (default setting), the IP address of the Primary LAN port is automatically assigned by a DHCP server on the local area network (LAN).
- **Disabled:** When DHCP is disabled, manually enter information in the following fields:
  - **Primary Static DNS:** Enter a primary DNS IP address.
  - **Secondary Static DNS:** Enter a secondary DNS IP address.
  - **IP Address:** Enter a unique IP address for the Primary LAN port.
  - **Subnet Mask:** Enter the subnet mask that is set on the network connected to the Primary LAN port.
  - **Default Gateway:** Enter the IP address that is to be used as the Primary LAN network's gateway.

To save any new network entries, select **Save Changes**.

## Stream

The settings available under the **Stream** accordion vary depending on whether the device is a decoder (D model) or encoder (E model).

### Stream Settings (D Models)

#### Sample Stream Settings (DM-NVX-D200 Shown)



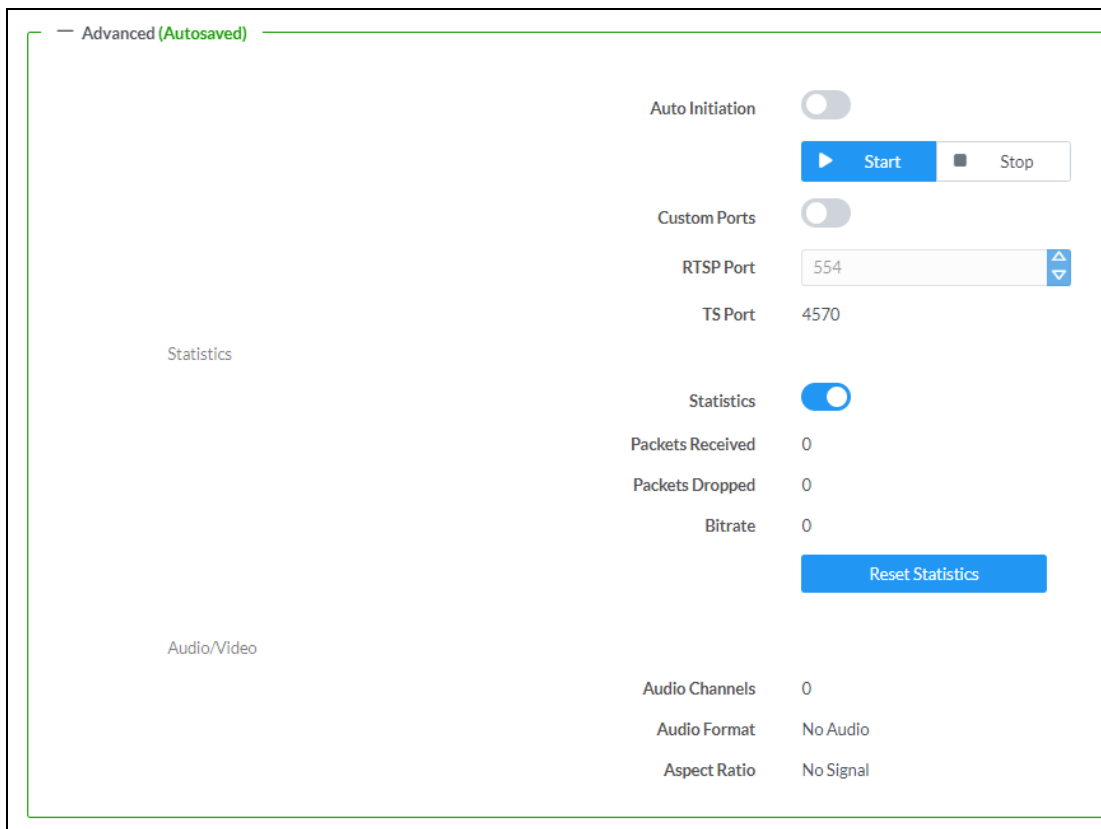
The screenshot shows a web interface for configuring stream settings. At the top, there is a blue header with a dropdown arrow and the text 'Stream'. Below this, the settings are displayed in a light gray box. The 'Device Name' field is labeled with a red asterisk and contains the value 'D200'. The 'Stream Location' field contains the URL 'rtsp://192.168.1.228:554/live.sdp'. The 'Multicast Address' field is currently empty. Below these fields, the 'Status' is shown as 'Connecting' and the 'Resolution' field is also empty.

Configure the basic stream settings:

- **Device Name:** Displays the name of the upstream DM NVX device. By default, this will match the hostname.
- **Multicast Address:** Displays the multicast address of the incoming stream.
- **Stream Location:** Displays the network location of the incoming stream.
- **Status:** Displays the status of the network stream (for example, **Connecting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the incoming stream.
- **Preview:** Displays a preview thumbnail of the stream; the thumbnail refreshes once per second.

### Advanced

The **Advanced** section provides further configuration of the incoming AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to set a custom RTSP port to connect to an incoming DM NVX stream. Set the toggle to the left to use the default port values (the default RTSP port value is 554).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.

**NOTE:** Valid values for the custom port field range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

- **TS Port:** Displays the default TS port value (4570).

The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the incoming DM NVX stream:
  - **Packets Received** will display the total number of packets received by the DM NVX device as part of the incoming DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - **Bitrate** will display the current bitrate of the incoming DM NVX stream.
  - Select **Reset Statistics** to set both **Packets Received** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the incoming DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the incoming DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the incoming DM NVX stream.

## Stream Settings (E Models)

### Sample Stream Settings (DM-NVX-E20 Shown)

Stream	
Multicast Address	239.8.0.64
Device Name *	Input 9
Stream Location	rtsp://172.30.164.169:554/live.sdp
Status	Stream started
Resolution	

Configure the basic stream settings:

- **Multicast Address:** Sets the multicast address of the outgoing stream.
  - The secondary audio stream from the DM NVX device will consume the next multicast address above the value entered here. For example, a **Multicast Address** of 239.10.0.1 will result in a secondary audio stream address of 239.10.0.2.

**CAUTION:** Ensure the value entered for **Multicast Address** is unique on the network. Duplicate multicast addresses will result in traffic collision and downstream receivers will fail to receive content.

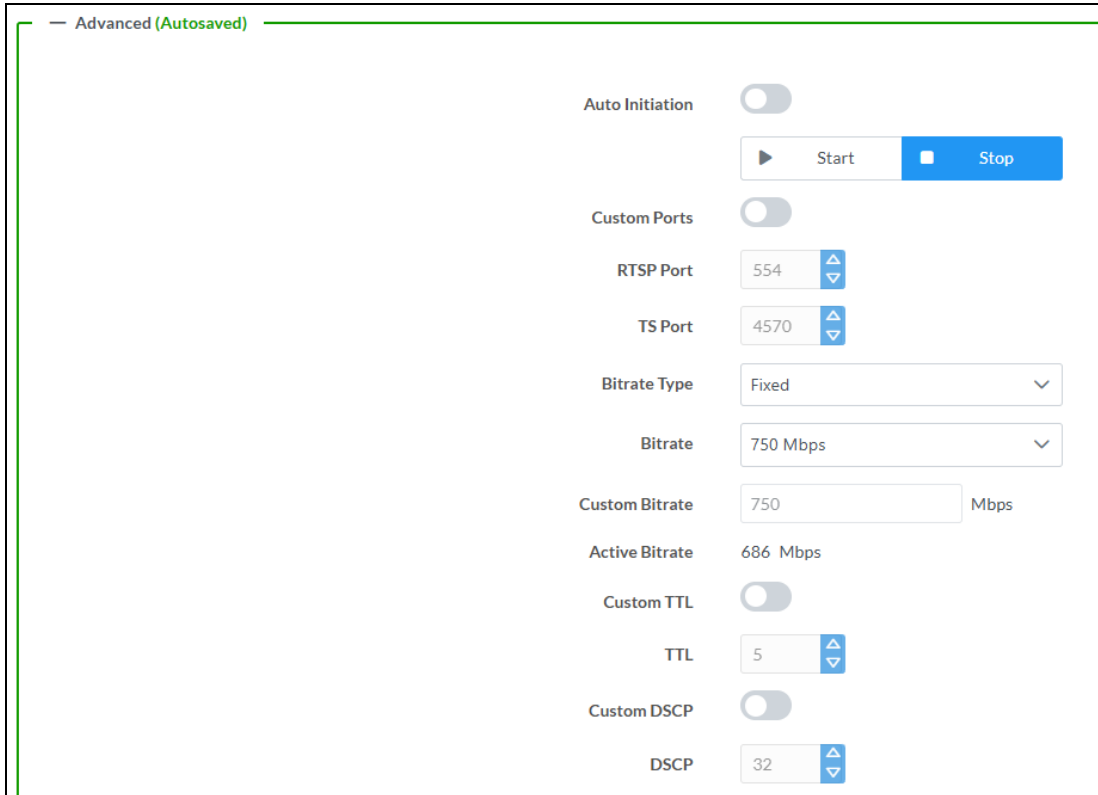
**NOTE:** DM NVX devices can have a multicast transmit address anywhere in the range from 239.0.0.1 to 239.127.255.255. DM NAX audio-over-IP devices use a multicast range from 239.8.0.1 to 239.127.255.255.

- **Device Name:** Displays the name of the DM NVX device. A custom name can also be entered in this text box. By default, this will match the hostname.
- **Stream Location:** Displays the network location of the stream.

- **Status:** Displays the status of the network stream (for example, **Stream starting**, **Stream started**, or **Stream stopped**).
- **Resolution:** Displays the resolution of the outgoing stream.

### Advanced

The **Advanced** section provides further configuration of the transmitting AVoIP stream along with stream statistics.



The following advanced settings are available for the transmitting DM NVX AVoIP stream:

- **Auto Initiation:** Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of DM NVX streams. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

Press the **Start** or **Stop** button to start or stop a stream if **Auto Initiation** is disabled.

**NOTE:** When **Automatic Initiation** is disabled, the device will not attempt to start a stream until the **Start** button is pressed or a control system sends a signal to the corresponding programmatic join.

- **Custom Ports:** Set the **Custom Ports** toggle to the right to configure a custom RTSP port for the transmitting DM NVX stream. Set the toggle to the left to use the default port values for both ports (the default RTSP port value is 554 and the default TS port value is 4570).

With **Custom Ports** enabled:

- Enter a custom RTSP port in the **RTSP Port** field.
- Enter a custom TS port in the **TS Port** field.

**NOTE:** Valid values for both custom port fields range from 1 to 65535. Crestron recommends using a custom port value greater than 10000.

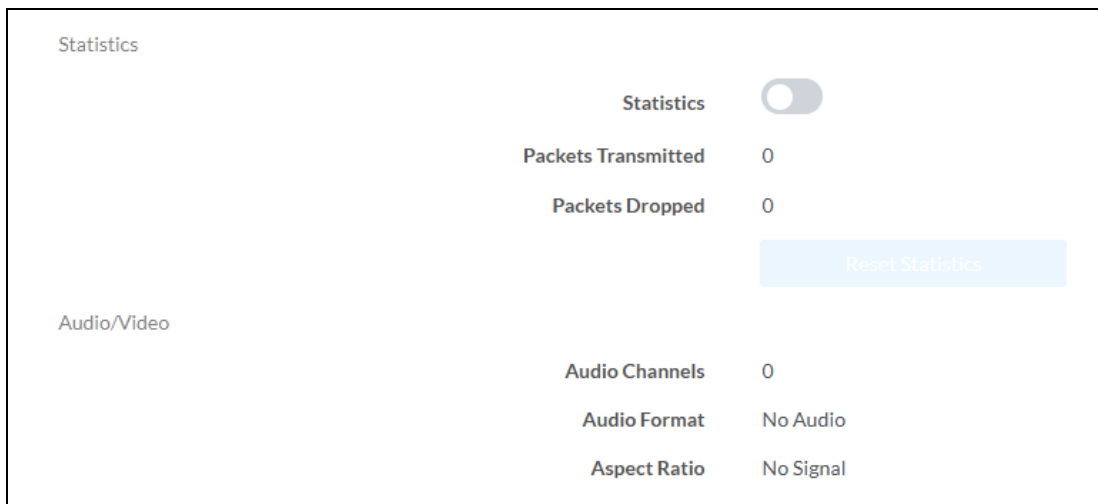
- **Bitrate Type:** Select either Fixed or Variable from the drop-down.
  - **Fixed:** The transmitting DM NVX stream always meets the bitrate specified by the **Bitrate** drop-down. The default and recommended bitrate value is 750 Mbps.
  - **Variable:** The bitrate of the transmitting DM NVX stream is dynamic based on the resolution of the stream content. Selecting **Variable** will disable the **Bitrate** drop-down and **Custom Bitrate** text entry field.
  - **Custom:** The transmitting DM NVX stream always meets the bitrate specified by the **Custom Bitrate** text entry field. The default and recommended bitrate value is 750 Mbps.
- **Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Fixed**.
- **Custom Bitrate:** Sets the bitrate of the DM NVX stream. This field is only applicable if **Bitrate Type** is set to **Custom**.
- **Active Bitrate:** Displays the current bitrate of the transmitting DM NVX stream.
- **Custom TTL:** Multicast Time-to-live (TTL) provides the ability to limit or extend the hop limit of a DM NVX stream that traverses routers. In IPv4 multicasting, routers have a TTL threshold assigned to each interface. Only multicast packets with a TTL greater than the threshold of the interface are forwarded.

Select the **Custom TTL** checkbox to enter a custom TTL value for the DM NVX stream in the **TTL** field.

- **TTL:** Enter a value from 1 to 255. The default TTL value is 5.
- **Custom DSCP:** To implement Quality of Service (QoS), IP networks use Differentiated Services Code Point (DSCP) values. Within an IP packet header, the DSCP is a value from 0 to 63 that maps to a certain traffic classification. Based on IT department policies and network switch configurations, DSCP values are used to determine the treatment of specific packets in router queues, the routes of traffic flows, and per-hop behavior. By default, DSCP for DM NVX AV-over-IP is set to 32.

Select the **Custom DSCP** checkbox to enter a custom DSCP value for the DM NVX stream's AV-over-IP packets in the **DSCP** field

**NOTE:** Only change the DSCP value if required by IT department policies or if necessitated by poor network performance. Refer to [AV-over-IP Network Design on page 628](#) for network performance troubleshooting tips.



The bottom portion of the **Advanced** section includes a **Statistics** field and an **Audio/Video** field:

- Set the **Statistics** toggle to the right to begin collecting statistics on the transmitting DM NVX stream:
  - **Packets Transmitted** will display the total number of packets transmitting by the DM NVX device as part of the outgoing DM NVX stream.
  - **Packets Dropped** will display the total number of dropped packets.
  - Select **Reset Statistics** to set both **Packets Transmitted** and **Packets Dropped** back to 0.
- **Audio Channels** displays the number of audio channels embedded in the transmitting DM NVX stream.
- **Audio Format** displays the format of the digital audio embedded in the transmitting DM NVX stream.
- **Aspect Ratio** displays the aspect ratio of the video signal embedded in the transmitting DM NVX stream.

## DM NAX (AES67) Audio

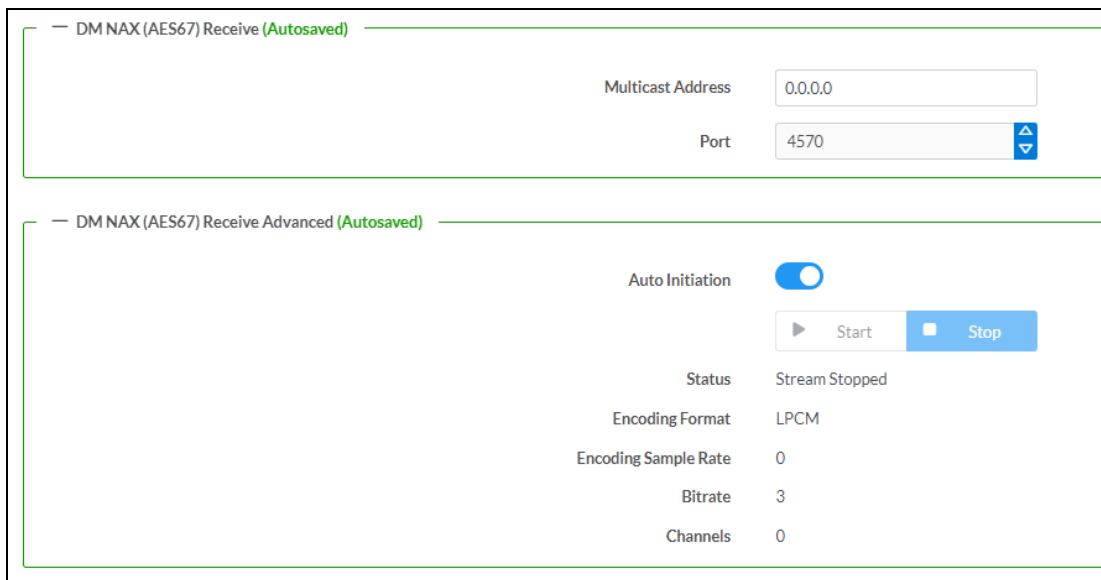
DM NVX devices natively support DM NAX® audio-over-IP technology, which is built off the standards of AES67. AES67 support allows a selected audio source to be transmitted as a 2-channel AES67 stream while another 2-channel AES67 audio stream is received from another AES67-capable device or Crestron DM NAX device.

Use the **DM NAX (AES67) Audio** accordion to configure the DM NAX audio-over-IP transmit and receive streams of the DM NVX device.

To configure the **DM NAX (AES67) Transmit** stream:

1. Select a stream addressing mode from the **Mode** drop-down:
  - **Automatic** adds 1 to the outgoing video stream multicast address to generate the DM NAX transmit multicast address. For example, if the video multicast address is 239.8.0.0, the DM NAX (AES67) multicast address is automatically set to 239.8.0.1.
  - **Manual** requires the multicast address of the transmitting DM NAX stream to be set manually. Selecting **Manual** enables the **Multicast Address** and **Port** text entry fields.
  - **Disabled** turns off DM NAX transmission from the DM NVX device.
2. Set a custom session name in the **Session Name** text entry field. This is similar to setting a hostname for an IP address on the LAN. The session name will appear in addition to the multicast address when the DM NAX audio-over-IP stream is discovered on the network.
3. If the **Mode** is set to **Manual**, enter custom values in the **Multicast Address** and **Port** text entry fields.
4. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the DM NAX transmit stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.
5. Adjust the **Gain** slider to configure the audio level compensation on the transmitting DM NAX stream from -10 to +10 dB.



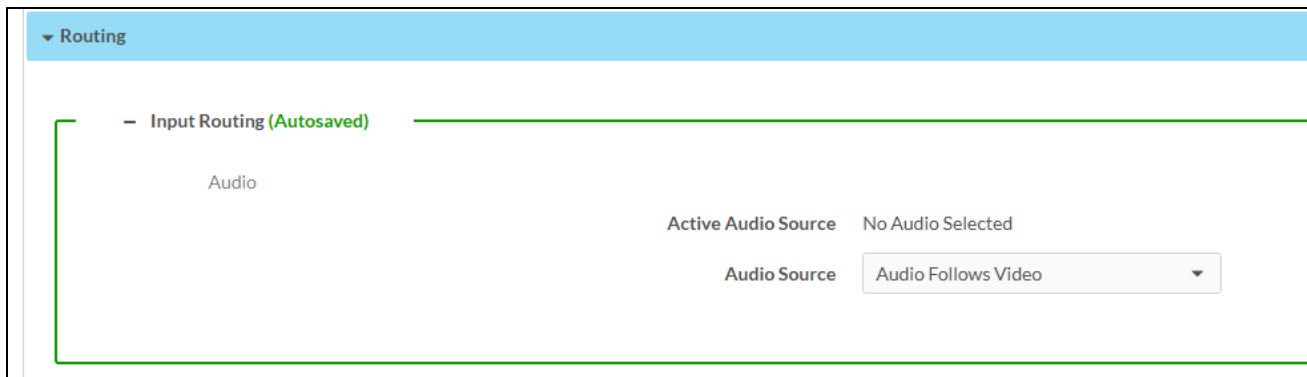


To configure the **DM NAX (AES67) Receive** stream:

1. Enter a valid multicast IP address in the **Multicast Address** field.
2. Enter the port value of the stream in the **Port** field.
3. Set the **Auto Initiation** toggle to the right to enable or left to disable automatic initiation of the incoming DM NAX stream. With **Auto Initiation** enabled, the stream will automatically start when valid stream parameters are set. By default, **Auto Initiation** is enabled.

## Routing

Use the **Routing** accordion to configure the audio and video routing behavior of the DM NVX device's internal switcher and secondary audio stream.



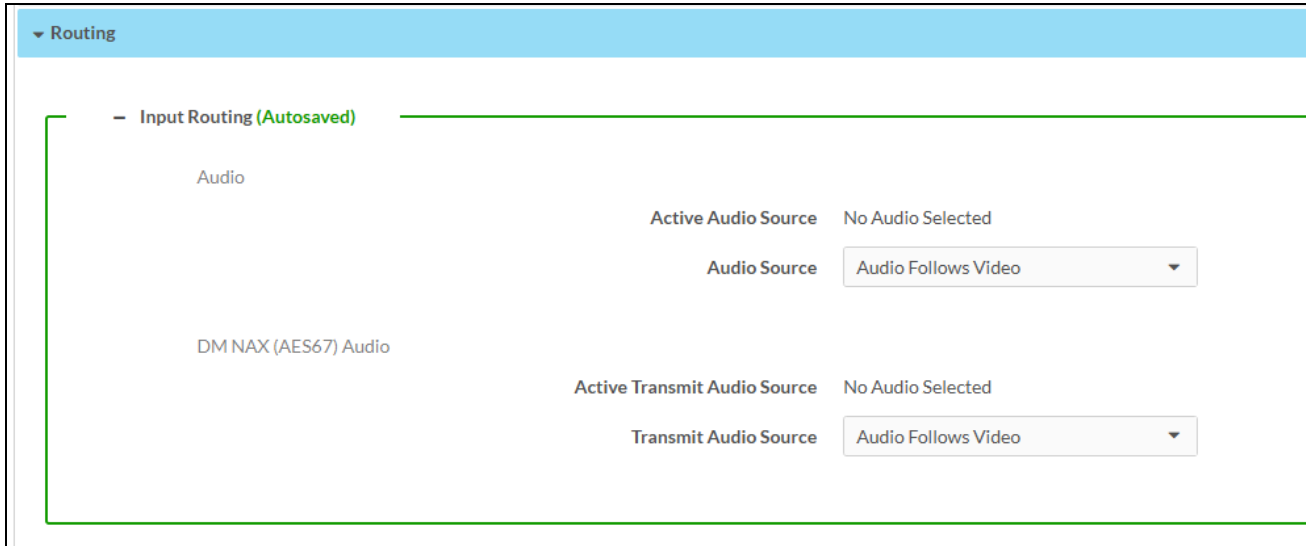
### Input Routing

The fields under the **Input Routing** subheading refer specifically to audio signal routing, which can be handled separately from video routing.

- The **Active Audio Source** read-only field displays the name of the currently active audio source. This reflects the audio that is embedded in the HDMI output (for D models) or DM NVX AV-over-IP stream (for E models).

- The options available for the **Audio Source** drop-down depend on the model:
  - For D models, the options are **Audio Follows Video**, **Primary Stream Audio**, and **DM NAX (AES67) Audio**.
  - For E models, the options are **Audio Follows Video**, **Input 1**, **DM NAX (AES67) Audio**, and **Analog Audio**.

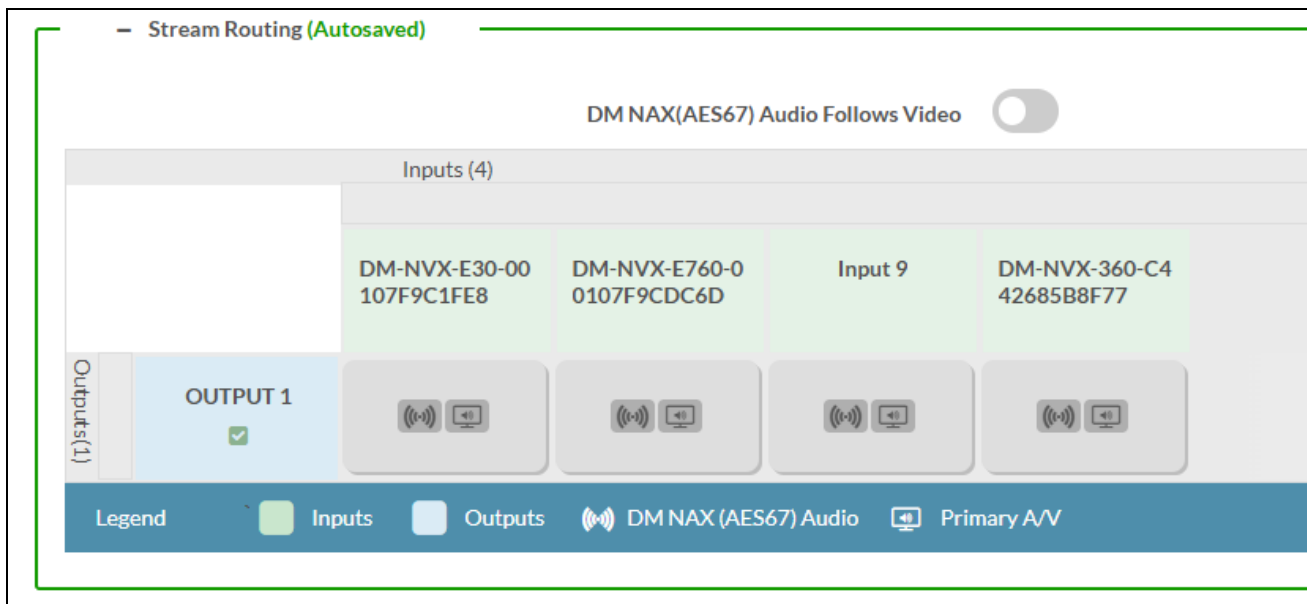
E models also have a subheading for DM NAX (AES67) Audio to handle routing for the secondary audio stream.



- The **Active Transmit Audio Source** read-only field displays the name of the currently transmitting audio source on the secondary audio stream.
- The options available for the **Transmit Audio Source** drop-down are **Audio Follows Video**, **Input 1**, and **Analog Audio**.

### Stream Routing (D Models Only)




The **Stream Routing** section houses the routing matrix for audio and video signals that can be received over the network.



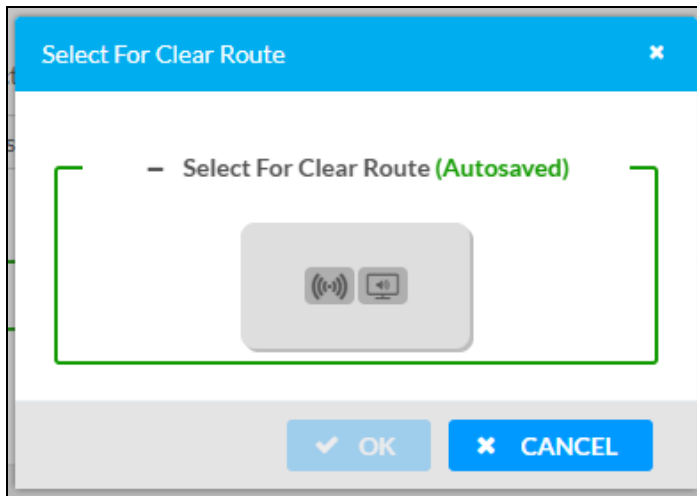
**NOTE:** In order for the routing matrix to appear, at least one subscription must be added from the **Subscriptions** accordion. Refer to [Subscriptions \(D Models Only\)](#) on page 608 for information on adding subscriptions.

Set the **DM NAX (AES67) Audio Follows Video** toggle to the right to have the secondary audio stream match the same routes as the primary AV stream. Set the toggle to the left to manage the secondary audio stream routing independently of the primary AV stream.

Use the routing matrix to establish or break signal routes:

- To route an AV-over-IP stream to the DM NVX device, select the  **Primary A/V** icon in that stream's matrix column. If the **DM NAX (AES67) Audio Follows Video** toggle is set to the right, the  **DM NAX (AES67) Audio** icon will also be selected automatically for that stream.
- To route a DM NAX (AES67) stream to the DM NVX device, select the  **DM NAX (AES67) Audio** icon in that stream's matrix column. To manage this independently of the AV-over-IP stream, the **DM NAX (AES67) Audio Follows Video** toggle must be set to the left.

- To break a route, do one of the following:
  - Select the **X** icon for a given input to clear all routes from that input.
  - Select the **✓** icon for a given output to clear routes from that input. A **Select For Clear Route** window appears.



Select either or both of the signal types to clear all routes of those types from the output, then select **OK** to clear those routes or **Cancel** to cancel the operation.

## Subscriptions (D Models Only)

The **Subscriptions** accordion allows the DM NVX receiver to subscribe to discovered network AV-over-IP streams for quick routing and switching without having to manually enter multicast addresses or session names.

Subscriptions						
- Subscribed Streams						
<input type="button" value="+ Add Stream"/> <input type="button" value="Unsubscribe"/> <input type="button" value="Load Subscriptions"/> <input type="button" value="Save Subscription"/>						
Global Filter <input type="text"/>						
No	Device Name	Stream Details	Bitrate	Actions	Reorder	
<input type="checkbox"/>	1	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted), 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	<input type="button" value="Unsubscribe"/>	<input type="button" value="v"/>

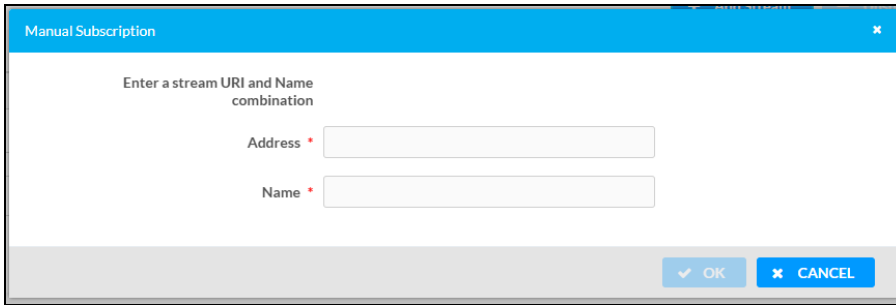
  

- Available Streams				
<input type="button" value="Subscribe Checked"/>				
Global Filter <input type="text"/>				
Device Name	Stream Details	Bitrate	Add Stream	
<input type="checkbox"/>	DM-NVX-E30-00107F9C1FE8	rtsp://172.30.160.43:554/live.sdp (Encrypted) TS/RTP, 239.5.5.38, 3840x2160@30Hz, Lpcm, 2Ch	750	<input type="button" value="Subscribe"/>
<input type="checkbox"/>	DM-NVX-E760-00107F9C6D	Stream not started	686	<input type="button" value="Subscribe"/>
<input type="checkbox"/>	Input 9	rtsp://172.30.164.169:554/live.sdp (Encrypted) TS/RTP, 239.8.0.64	360	<input type="button" value="Subscribe"/>
<input type="checkbox"/>	DM-NVX-360-C442685B8F77	rtsp://172.30.164.163:554/live.sdp (Encrypted) TS/RTP, 239.8.0.0	686	<input type="button" value="Subscribe"/>

The **Subscribed Streams** table displays all network streams that the device is subscribed to. These streams are also available in the routing matrix in the **Routing** accordion. Refer to [Stream Routing \(D Models Only\)](#) on page 606 for information on routing a subscribed stream.

To add a stream to the table, do either of the following:

- Select **+ Add Stream**. A **Manual Subscription** window appears.

A dialog box titled "Manual Subscription" with a blue header and a close button (X) in the top right. The main area contains the text "Enter a stream URI and Name combination". Below this are two input fields: "Address" and "Name", each with a red asterisk to its left. At the bottom right, there are two buttons: "OK" with a checkmark icon and "CANCEL" with an X icon.

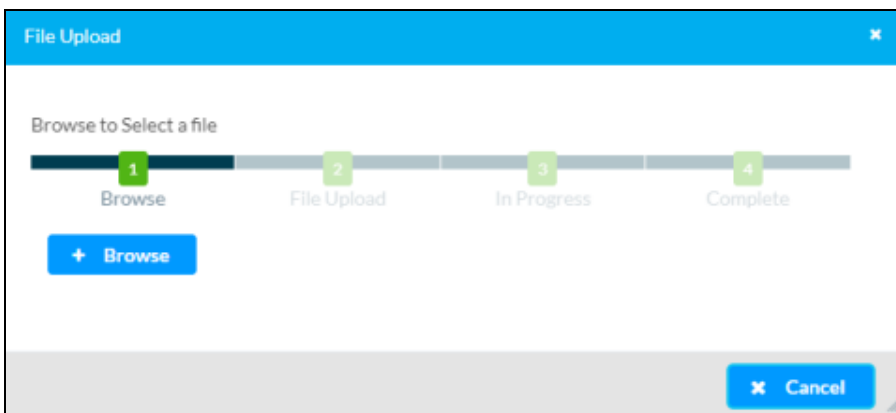
- Enter the multicast address of the stream in the **Address** field.
  - Enter the device name of the transmitting device in the **Name** field.
  - Select **✓ OK** to add the stream to the **Subscribed Streams** list or select **X Cancel** to cancel the operation.
- Select the **Subscribe** button for a stream listed in the **Available Streams** table.

To add multiple streams to the table at once, select the checkbox for each desired stream in the **Available Streams** table, then select **+ Subscribe Checked**.

To remove a stream from the table, select **x Unsubscribe** in its table row. To remove multiple streams at once, select the checkbox for each stream in the **Subscribed Streams** table, then select **- Unsubscribe** at the top of the table.

The **Subscribed Streams** table can also be exported as a .xml file to other DM NVX receivers. This allows the subscription process to be performed even more efficiently on other receivers. To export the table and upload it to another receiver:

1. Subscribe to all of the desired network streams.
2. Select **Save Subscription** at the top of the **Subscribed Streams** table. A .xml file will be downloaded to the connected PC.
3. Log in to the next DM NVX receiver's web interface and navigate to its **Subscriptions** accordion.
4. Select **Load Subscriptions** at the top of the **Subscribed Streams** table. A **File Upload** window appears.

A dialog box titled "File Upload" with a blue header and a close button (X) in the top right. The main area contains the text "Browse to Select a file". Below this is a progress bar with four segments labeled 1, 2, 3, and 4. Segment 1 is dark blue and labeled "Browse". Segment 2 is light blue and labeled "File Upload". Segment 3 is light blue and labeled "In Progress". Segment 4 is light blue and labeled "Complete". Below the progress bar is a blue button with a plus sign and the text "Browse". At the bottom right, there is a blue button with an X icon and the text "Cancel".

5. Select **+ Browse**. Locate the .xml file, then select **Upload** to upload it to the DM NVX device. When the upload completes, the window will close and the interface will return to the **Subscriptions** accordion with the **Subscribed Streams** table filled out.

## Inputs (E Models Only)

The **Inputs** accordion contains source resolution and EDID information as well as input configuration options for the local input connector on the DM NVX device.

Name	Sync Detected	Resolution	EDID	HDCP Receiver Capability	Actions
INPUT 1	No	0x0@0	4K60 444 HBR HDR	Auto	<a href="#">Edit</a>

To configure the input, select the **Edit** button. An **Edit Input** window appears.

### Edit Input

The **Edit Input** window will open to the **Settings** tab by default. This tab enables configuration of the available input settings for the HDMI input.

DM-NVX-E20-2G-01 > Inputs  
INPUT 1

▼ Status    ⚙ Settings

▼ General

Name: INPUT 1

HDCP Receiver Capability: Auto

Color Depth: 8-bitMode

Color Space: Unknown

▶ EDID(Autosaved)

The **General** accordion is open by default.

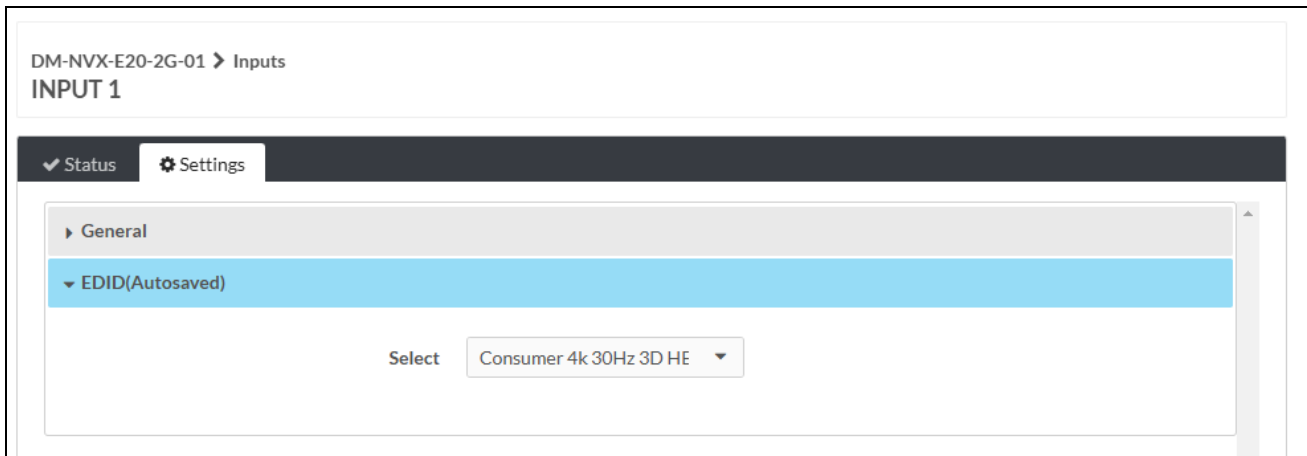
Enter a friendly name for the input in the **Name** text entry field.

Use the **HDCP Receiver Capability** drop-down to select **Auto** or a specific HDCP version. The **Auto** setting will set the HDCP level of the input to match the detected HDCP level of the source. Use a specific HDCP setting to force the input signal to match the capabilities of a downstream display.

**NOTE:** Setting a specific HDCP level may blank the input signal if the source is not capable of meeting the specified HDCP level.

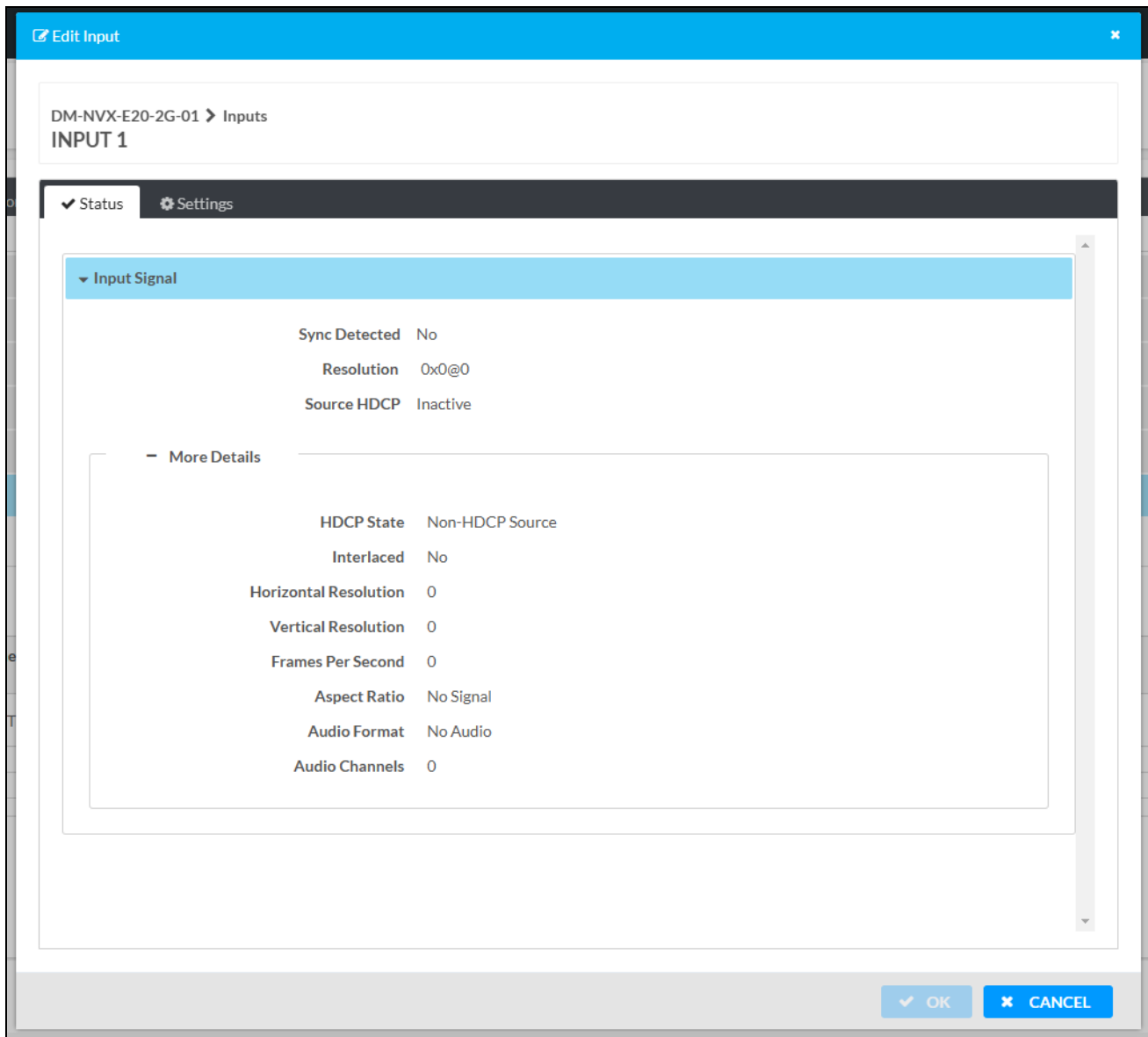
The **Color Depth** and **Color Space** fields are read-only and depend on the incoming video signal.

Select the **EDID** accordion to access EDID settings specific to the selected input.



Use the **Select** drop-down to apply a specific EDID file to the selected input. All built-in and custom EDIDs are available in this list. Refer to [Action on page 576](#) for more information on loading custom EDIDs to this list.

Select the **Status** tab to reference sync, resolution, HDCP, and audio information for the connector and input source.



Use **OK** or **Cancel** to return to the **Settings** page. Select **OK** to apply any changes made in the **Edit Input** window or select **Cancel** to discard the changes.


## Outputs

The **Outputs** accordion contents depend on whether the device is a decoder (D model) or encoder (E model).

### Outputs (D Models)

In the interface of D10, D20, and D200 models, the **Outputs** accordion contains status information and an **Edit** option for the local HDMI output connector on the DM NVX device.

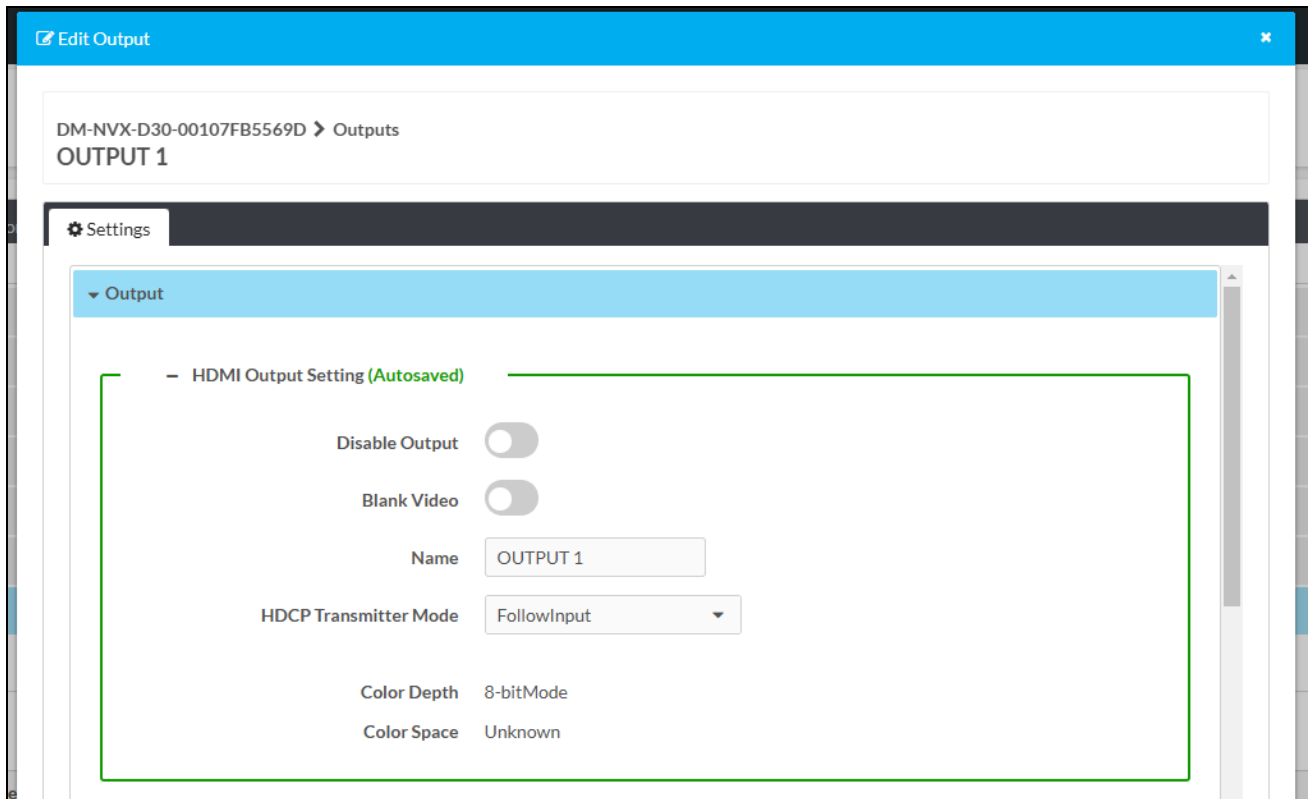


Name	Sink Connected	Resolution	HDCP Transmitter Mode	Actions
HDMI 1	Yes	3840x2160@60	Follow Input	 Edit

To configure the output, select the **Edit** button. An **Edit Output** window appears. The settings available in the **Edit Output** window depend on which mode the DM NVX device is in.

### Edit Output - Output Accordion

The **Output** accordion is open by default.



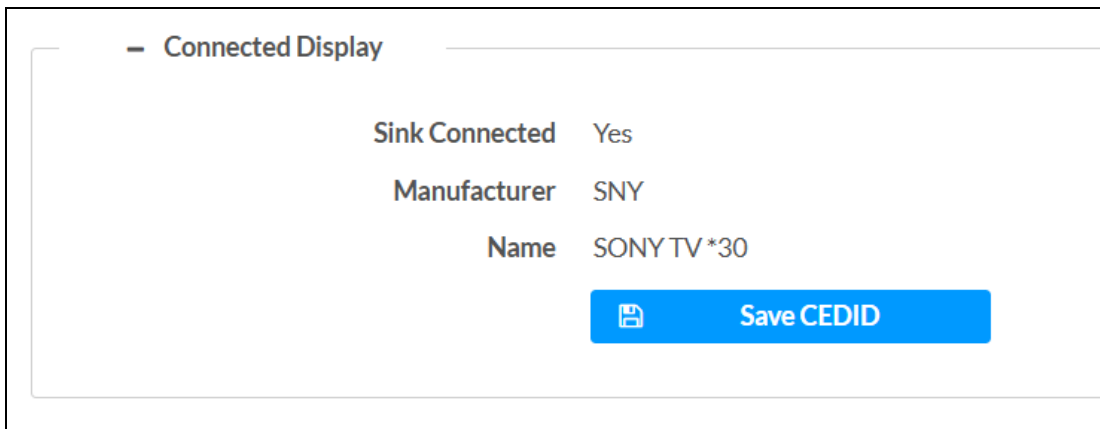
The screenshot shows the 'Edit Output' window for 'OUTPUT 1'. Under the 'Settings' tab, the 'Output' accordion is expanded to show 'HDMI Output Setting (Autosaved)'. The settings include:

- Disable Output:** A toggle switch currently turned off (to the left).
- Blank Video:** A toggle switch currently turned off (to the left).
- Name:** A text field containing 'OUTPUT 1'.
- HDCP Transmitter Mode:** A dropdown menu set to 'FollowInput'.
- Color Depth:** Set to '8-bitMode'.
- Color Space:** Set to 'Unknown'.

Configure basic settings under the **HDMI Output Setting** subheading:

- Set the **Disable Output** toggle to the right to turn off the HDMI output. Set the toggle to the left to turn the HDMI output back on.
- Set the **Blank Video** toggle to the right to transmit a full-screen black video signal. Set the toggle to the left to transmit the video signal of the selected input.
- Enter a friendly name for the output in the **Name** text entry field.

- Use the **HDCP Transmitter Mode** drop-down to select between:
  - **Auto:** The HDCP level of the output will automatically match the HDCP level of the video signal.
  - **Follow Input:** The HDCP level of the output will be forced to the supported HDCP level of the local input.
  - **Force Highest:** The HDCP level of the output will force compatibility with the highest HDCP level supported by the entire signal chain.
  - **Never Authenticate:** The output will never authenticate at any HDCP level. This will blank video when any content-protected video signal is routed to the output.
- The **Color Depth** and **Color Space** fields are read-only values that display the current depth and space of the video output signal, respectively.



The **Connected Display** subheading contains read-only fields with the **Sink Connected** status, **Manufacturer**, and **Name** of the connected display. Select **Save CEDID** to download a .cedid file that can be loaded to this or other DM NVX devices. Refer to [Action on page 576](#) for more information on loading custom EDID files.

- Output Signal	
Transmitting	Yes
Resolution	3840x2160@60
Horizontal Resolution	3840
Vertical Resolution	2160
Frames PerSecond	60
Aspect Ratio	16:9
Audio Format	No Audio
Audio Channels	0

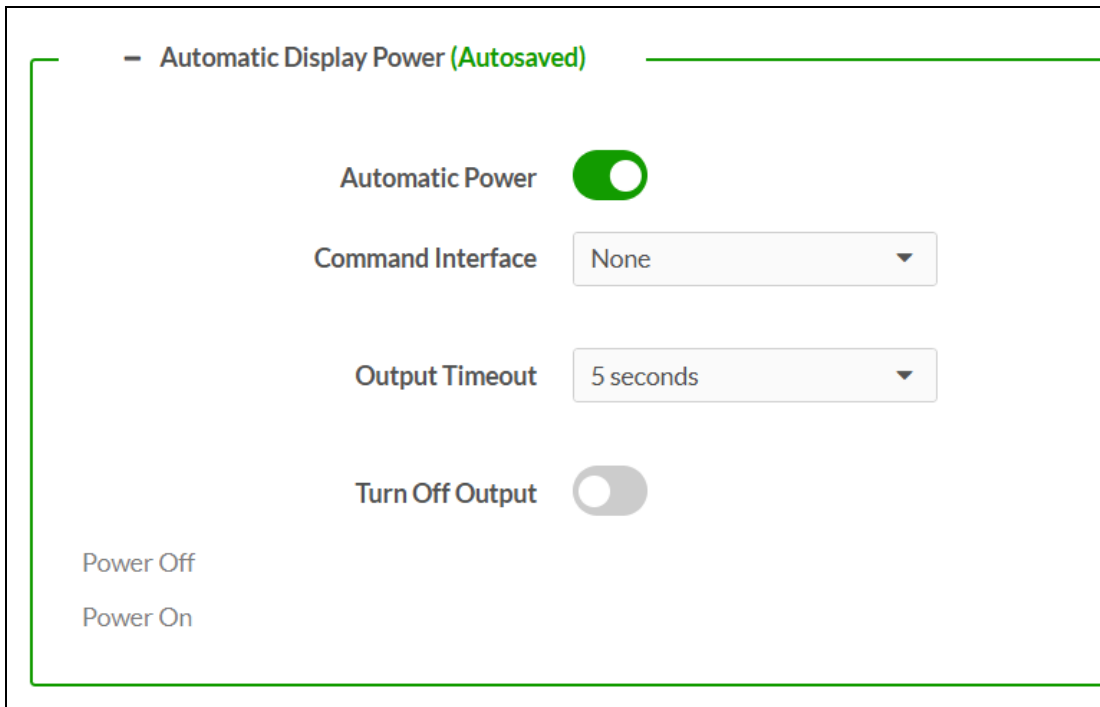
The **Output Signal** subheading contains read-only fields with information on the transmission status and resolution of the video output signal.

- Analog Settings (Autosaved)	
Analog Audio Volume *	<input type="range"/> <input type="text" value="-14"/> db

To adjust the **Analog Audio Volume**, do one of the following:

- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.



The **Automatic Display Power** subheading enables configuration of display power on and power off commands that are issued to the connected display when a video signal is detected or stops.

Set the **Automatic Power** toggle to the right to enable display power commands. Select a **Command Interface** from the drop-down from among **None**, **CEC**, **IR**, and **RS-232**.

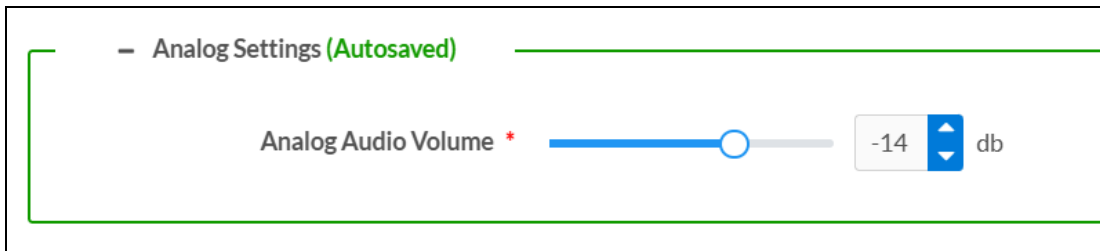
**NOTE:** IR and RS-232 are not available on card-based models.

Once the **Command Interface** is selected, set the appropriate **Power On** and **Power Off** commands under their respective subheadings. RS-232 command strings may be available from the display manufacturer's documentation.

## Outputs (E Models)

**NOTE:** This accordion is not available on DM-NVX-E20-2G models.

In the interface of an E10 or E20 model, the **Outputs** accordion only contains the **Analog Audio Volume** setting for the local **AUDIO I/O** connector of the device.



To adjust the **Analog Audio Volume**, do one of the following:

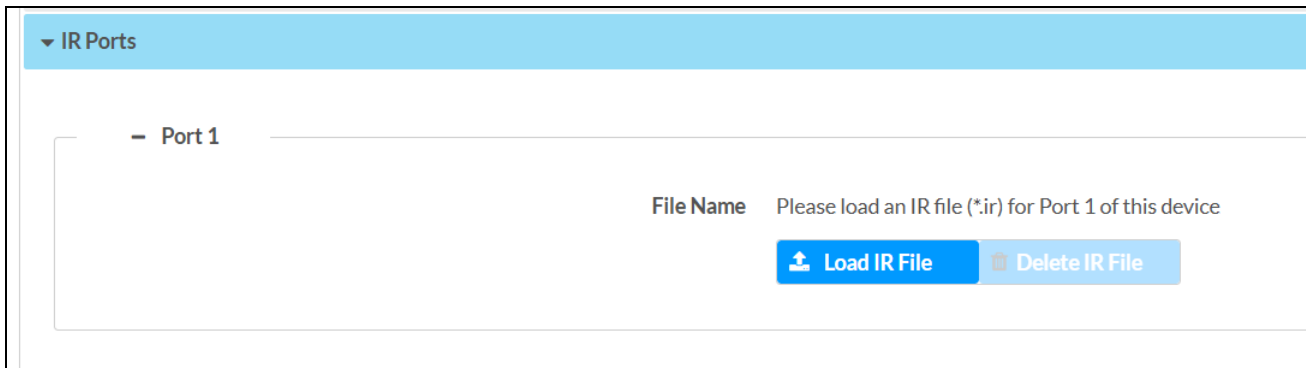
- Move the slider to the right to increase or left to decrease the volume.
- Use the arrows to increase or decrease the volume.
- Manually enter a volume value in the text entry field.

The **Analog Audio Volume** is set to 0 dB by default. Values range from -80 dB to 20 dB.

## IR Ports

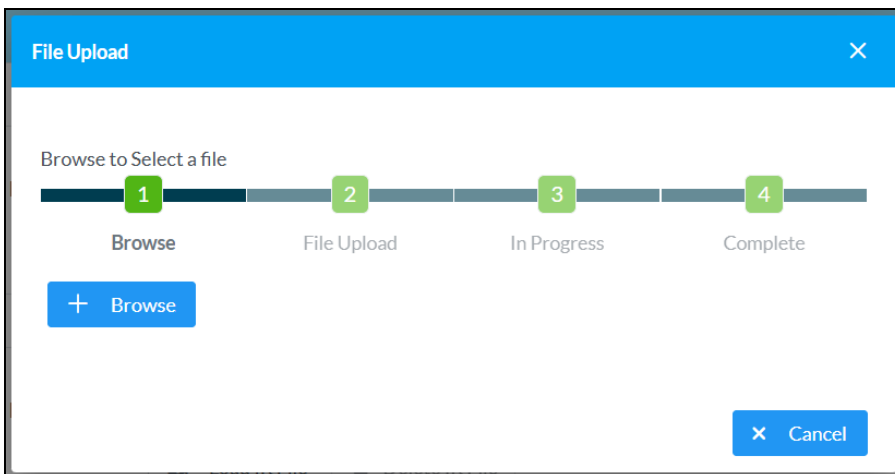
**NOTE:** This accordion is not available on DM-NVX-E20-2G models.

The **IR Ports** accordion allows custom IR files containing device commands to be uploaded to the DM NVX device IR connector. Custom IR files can be generated via the [Device Learner](#) utility within Crestron Toolbox software. The IR port can hold only one IR file at a time. IR files must be loaded to each port individually.



To upload an IR file to the IR port:



1. Select **Load IR File**.
2. In the **File Upload** window that appears, select **+ Browse**.



3. Locate and select the desired IR file, then select **Open**. The selected file name is displayed.
4. Select **Load**, then wait for the progress bar to complete and for **OK** to become selectable.
5. Select **OK**. The IR file is now loaded to the IR port.

Once the IR file is uploaded, its filename will appear next to the IR port. A read-only table showing all included commands will also appear and populate.

File Name TV.ir

Commands

IR Code	IR Command
1	On
2	Off
3	Input

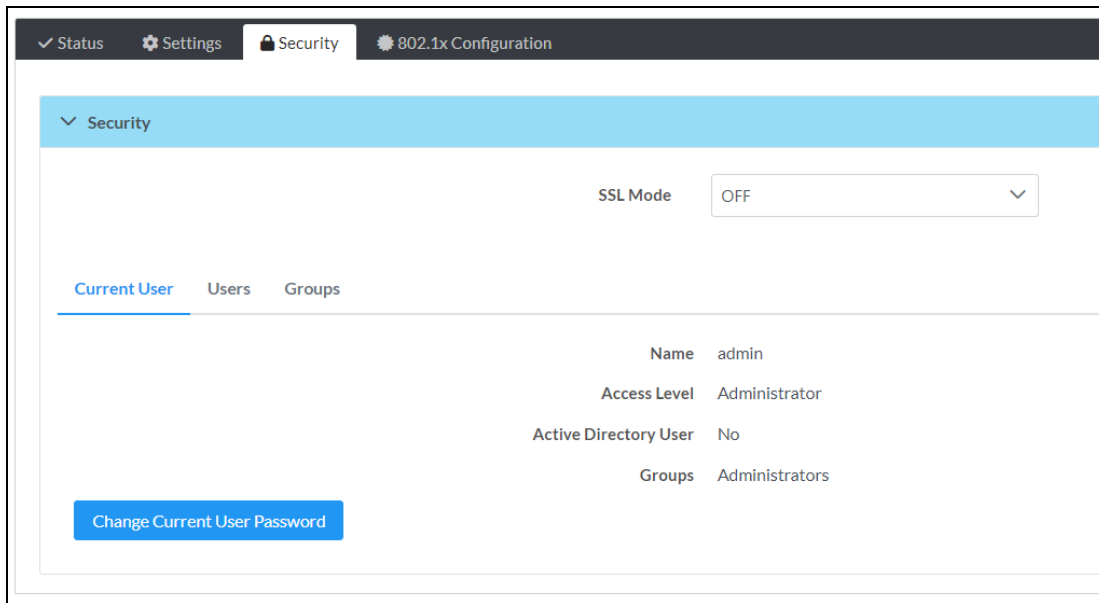
To delete an IR file, select **Delete IR File**.

# Security

**NOTE:** This section applies to the following models:

- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

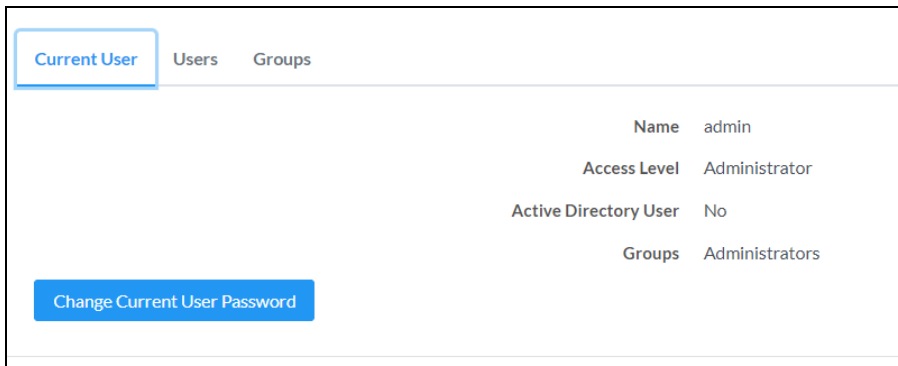
Select the **Security** tab to configure security for users and groups and to allow different levels of access to the DM NVX device functions. By default, security is disabled.



Select **Encrypt and Validate**, **Encrypt**, or **OFF** from the **SSL Mode** drop-down menu to specify whether to use encryption. By default, **SSL Mode** is set to **OFF**.

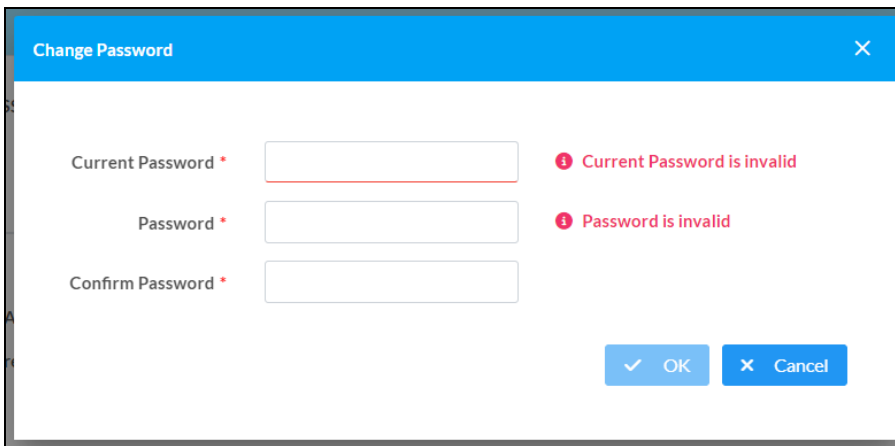
## Current User

Select the **Current User** tab to view read-only information or to change the password for the current user.



To change the password for the current user account:

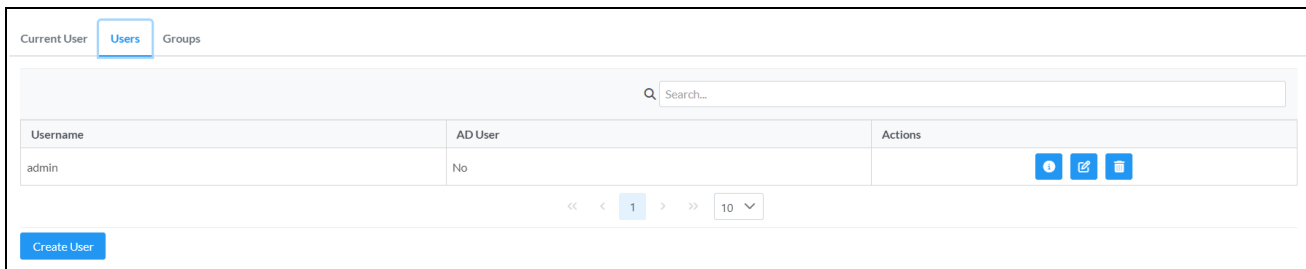
1. Select **Change Current User Password**.
2. In the **Change Password** dialog, enter the current password in the **Current Password** field, the new password in the **Password** field, and then re-enter the same new password in the **Confirm Password** field.



3. Select **OK** to save or select **Cancel** to cancel the changes.

## Users

Select the **Users** tab to view and edit user settings. The **Users** tab can be used to add or remove local and Active Directory users and preview information about them.



Use the **Search Users** field to enter search term(s) and display users that match the search criteria.



If users listed in the **Users** table span across multiple pages, navigate through the list by selecting a page number or by using the left or right arrows at the bottom of the **Users** pane to move forward or backward through the pages.



Each page can be set to display 5, 10, or 20 users by using the drop-down to the right of the navigation arrows.

Information about existing users is displayed in table format and the following details are provided for each user.

- **Username:** Displays the name of the user.
- **AD User:** Displays whether the user requires authentication using Active Directory.

Select the information icon  in the **Actions** column to view detailed user information, or select the delete icon  to delete a user.

To create a new user, select **Create User**.

## Create a New Local User

To create a new local user:

1. Select **Create User** in the **Users** tab.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field. A valid user name can consist of alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
  - c. Assign the access level by selecting one or more user groups from the **Groups** drop-down list.

**NOTE:** Make sure that the **Active Directory User** toggle is set to the left (disabled).

3. Select **OK** to save or select **Cancel** to cancel the changes.

## Grant Access to an Active Directory User

Users cannot be created or removed from the Active Directory server, but access can be granted to an existing user in the Active Directory server.

To grant access to an Active Directory user, you can either add the user to a local group on the DM NVX device, or add the Active Directory group(s) that they are a member of to the DM NVX device. Refer to [Grant Access to an Active Directory Group on page 624](#) for steps on granting access to a group.

To grant access to an Active Directory user directly:

1. Select **Create User**.
2. In the **Create User** dialog, enter the following:
  - a. Enter a user name in the **Name** field in the format "Domain\UserName", for example "crestronlabs.com\JohnSmith". Valid user names can contain alphanumeric characters (letters a-z, A-Z, numbers 0-9) and the underscore "\_" character.
  - b. Select one or more groups from the **Groups** drop-down list.


**NOTE:** Make sure that the **Active Directory User** toggle is set to the right (enabled).

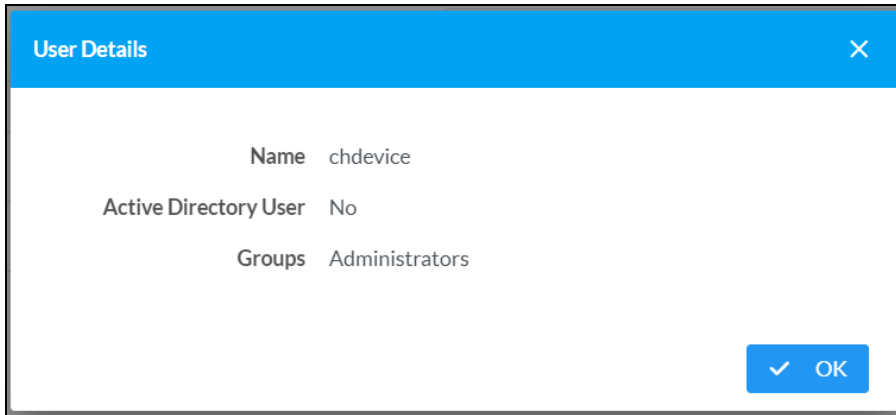
3. Select **OK** to save or select **Cancel** to cancel the changes.

## Delete a User

To delete a user, select the trashcan icon  in the **Actions** column. Select **Yes** when prompted to delete the user or **No** to cancel the deletion.

## View User Details

Select the information icon  in the **Actions** column to view information for the selected user. The **User Details** dialog displays the following information for the selected user.




The fields displayed in the **User Details** window are:

- **Name:** Displays the name of the selected user.
- **Active Directory User:** Displays whether the user is an Active Directory user.
- **Group:** Displays group(s) the selected user is part of.

Select **OK** to close the **User Details** window and return to the **Users** tab.

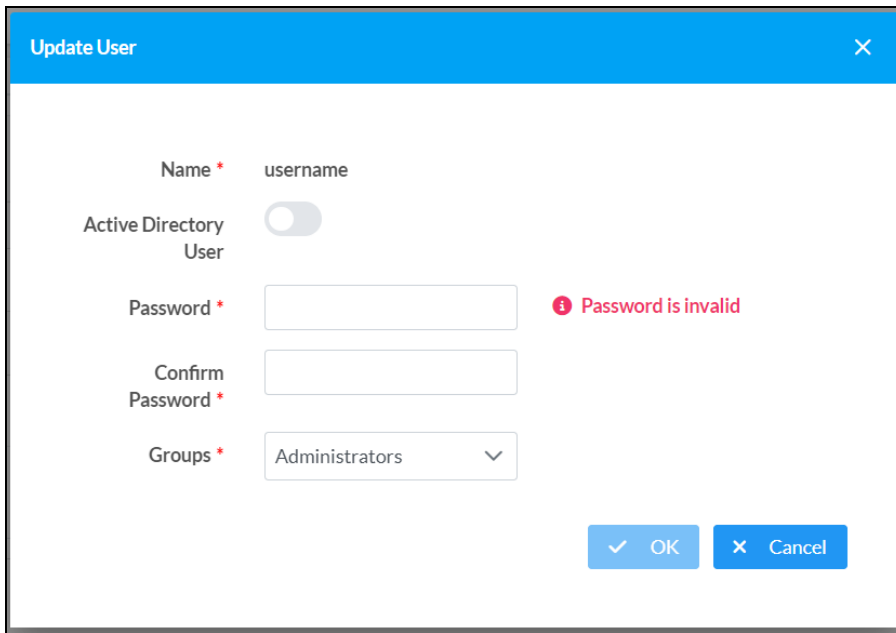
## Update User Details

To update the details for an existing user:

1. Select the edit icon  in the **Actions** column to update information for the selected user.
2. Set the **Active Directory User** toggle to the right if the user is an Active Directory user, or to the left if the user is not.
3. Enter a password in the **Password** field; re-enter the same password in the **Confirm Password** field.
4. Select one or more groups to assign the user to from the **Groups** drop-down list. Deselect any groups to remove the user from those groups.

**NOTE:** After a user is removed from a group, they lose any access rights associated with that group.

5. Select **OK** to save or select **Cancel** to cancel the changes.



**Update User** [Close]

Name \* username

Active Directory User

Password \*  ❗ Password is invalid

Confirm Password \*

Groups \* Administrators ▼

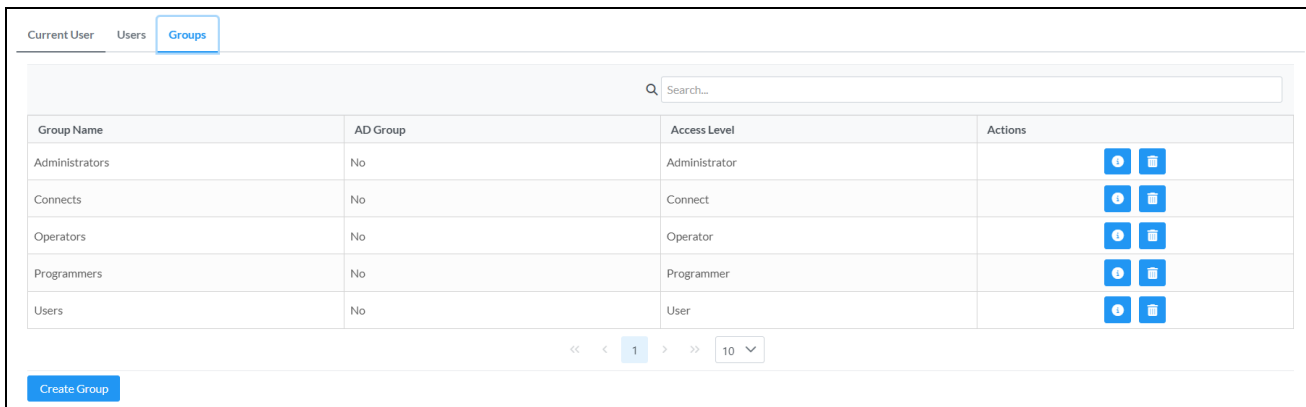
[OK] [Cancel]

**NOTE:** The **Name** field is a read-only field that displays the username for the selected user. To change a username, the user must be deleted and a new user must be added.

## Groups

Select the **Groups** tab to view and edit group settings. The **Groups** tab can be used to add local and Active Directory groups, remove local and Active Directory groups, and preview information about a group.

Use the **Search Groups** field to enter search term(s) and display groups that match the search criteria.



Current User | Users | **Groups**

Search...

Group Name	AD Group	Access Level	Actions
Administrators	No	Administrator	[Add] [Remove]
Connects	No	Connect	[Add] [Remove]
Operators	No	Operator	[Add] [Remove]
Programmers	No	Programmer	[Add] [Remove]
Users	No	User	[Add] [Remove]

<< < 1 > >> 10 ▼



Create Group

If groups listed in the **Groups** table span across multiple pages, navigate through the groups by selecting a page number or by using the left or right arrows at the bottom of the **Groups** pane to move forward or backward through the pages.

Each page can be set to display 5, 10, or 20 groups by using the drop-down to the right of the navigation arrows.

Existing groups are displayed in a table and the following information is provided for each group:

- **Group Name:** Displays the name of the group.
- **AD Group:** Displays whether the group requires authentication using Active Directory.
- **Access Level:** Displays the predefined access level assigned to the group (Administrator, Programmer, Operator, User, or Connect).

Select the information icon  in the **Actions** column to view detailed group information, or select the delete icon  to delete a group.

Select **Create Group** in the **Groups** tab to create new group.

## Create a Local Group

To create a local group:

1. Select **Create Group**.
2. In the **Create Group** dialog, enter the following:
  - a. Enter the group name in the **Name** field.
  - b. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the left (disabled).

3. Select **OK** to save. Select **Cancel** to cancel the changes.

## Grant Access to an Active Directory Group

A group cannot be created or removed from the Active Directory server, but access can be granted to an existing Active Directory group.

Once the group is added, all members of that group will have access to the DM NVX device.

To grant access to an Active Directory group:

1. Select **Create Group**.
2. In the **Create Group** dialog enter the following:
  - a. Enter the group name in the **Name** field (for example, "Engineering Group").


**NOTE:** Group names are case sensitive, and a space is a valid character that can be used in group names.

3. Assign the group access level by selecting a predefined access level (Administrator, Connect, Operator, Programmer, User) from the **Access Level** drop-down.

**NOTE:** Make sure that the Active Directory Group toggle is set to the right (enabled).


4. Select **OK** to save. Select **Cancel** to cancel the changes.

## Delete a Group

Select the trashcan icon  in the **Actions** column to delete a group. Select **Yes** when prompted to delete the group or **No** to cancel the deletion.

When a group is deleted, users in the group are not removed from the device or Active Directory server. However, because a user's access level is inherited from a group(s), users within the deleted group will lose access rights associated with the group.

## View Group Details

Select the information icon  in the **Actions** column to view information for the selected group. The **Group Details** dialog lists the following information for the selected group:

- **Name:** Displays the name of the group.
- **Access Level:** Displays the access level of the group and its users.
- **Active Directory Group:** Displays whether the group is an Active Directory group.

Select **OK** to close the **Group Details** dialog and return to the **Groups** tab.

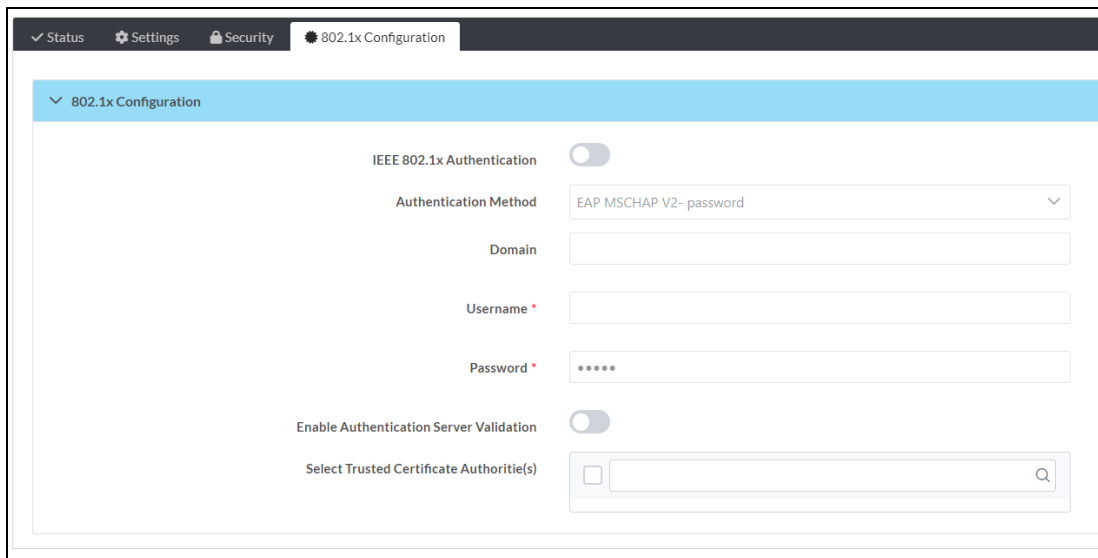
# 802.1X Configuration

**NOTE:** This section applies to the following models:

- DM-NVX-D10
- DM-NVX-D20
- DM-NVX-D200
- DM-NVX-E10
- DM-NVX-E20
- DM-NVX-E20-2G-B-T
- DM-NVX-E20-2G-W-T

DM NVX devices have built-in support for the 802.1X standard (an IEEE network standard designed to enhance the security of wireless and Ethernet LANs, relying on the exchange of messages between the device and the network's host, or authentication server), allowing communication with the authentication server and access to protected corporate networks.

The **802.1X Configuration** page can be accessed at any time by selecting the **802.1X Configuration** tab of the interface.



The screenshot shows the 802.1X Configuration page in a web interface. The page has a dark header with navigation tabs: Status, Settings, Security, and 802.1X Configuration. Below the header, there is a light blue section titled "802.1X Configuration". The main content area contains the following configuration options:

- IEEE 802.1x Authentication:** A toggle switch that is currently turned on.
- Authentication Method:** A dropdown menu currently set to "EAP MSCHAP V2- password".
- Domain:** An empty text input field.
- Username:** An empty text input field.
- Password:** A text input field with masked characters (dots).
- Enable Authentication Server Validation:** A toggle switch that is currently turned on.
- Select Trusted Certificate Authority(ies):** A search input field with a magnifying glass icon.

## Configure the Device for 802.1X Authentication

To configure the DM NVX device for 802.1X Authentication:

1. Set the **IEEE 802.1X Authentication** toggle to the right. This will enable all options on the 802.1X dialog.
2. Select an **Authentication Method**: Choose between **EAP-TLS Certificate** or **EAP-MSCHAP V2 Password** according to the network administrator's requirement.

3. Do one of the following:
  - a. If **EAP-TLS Certificate** was selected: Select **Action/Manage Certificates** to upload the required machine certificate. The machine certificate is an encrypted file that will be supplied by the network administrator, along with the certificate password.
  - b. If EAP-MSCHAP V2 Password was selected: Enter the username and password supplied by the network administrator into the **Username** and **Password** fields, respectively. This method does not require the use of a machine certificate, only the user name and password credentials.
4. If you enabled the **Enable Authentication Server Validation** option, this will enable the **Select Trusted Certificate Authoritie(s)** list box which contains signed Trusted Certificate Authorities (CAs) preloaded onto the DM NVX device.

Select the check box next to each CA whose certificate can be used for server validation, as specified by the network administrator.

If the network does not use any of the listed certificates, the network administrator must provide a certificate, which must be uploaded manually via the **Manage Certificates** function in the **Action** menu. Refer to [Action on page 576](#) for more information on the **Manage Certificates** function.
5. If required, type the domain name of the network in the **Domain** field.
6. When the 802.1X settings are configured as desired, select **Save Changes** to save the changes to the device and reboot it. Select **Revert** to cancel any changes.

# AV-over-IP Network Design

A Crestron DM NVX AV-over-IP (AVoIP) distribution system routes and manages digital AV and USB signals over standard gigabit Ethernet infrastructure. The DM NVX AVoIP platform also includes DM NAX Audio-over-IP technology for distribution of digital audio signals based on AES67 standards. DM NVX AVoIP traffic is multicast by design, so careful and thorough network design is critical to a successful deployment. For a proper installation of a DM NVX AVoIP distribution system, refer to the best practices that follow.

**NOTE:** Additional content pertaining to systems utilizing DM NAX Audio-over-IP technology is available in the [DM NAX Audio-over-IP Network Design topic in the DM NAX Audio-over-IP Platform Product Manual](#).

## Minimum Network Requirements

Several network switch hardware and firmware features are required in order for an install to successfully support DM NVX AVoIP.

- Required network switch features and settings:
  - 1 Gbps port for each connected DM NVX endpoint
  - Nonblocking backplane
  - Layer 3 switching
  - IGMPv2 Snooping
  - IGMPv2 Querier
  - Fast-leave (also known as immediate leave)
- Interswitch uplink requirements (if needed):
  - Must have sufficient bandwidth for all encoder and decoder traffic to be passed along the uplink (allocate 1 Gbps of traffic per device)

## Network Design Overview

DM NVX networks must be designed to isolate traffic on network segments specifically configured to handle DM NVX AV-over-IP (AVoIP) and DM NAX Audio-over-IP (AoIP) traffic. This can be accomplished by using separate infrastructure, Virtual Local Area Networks (VLANs), or Multi-Protocol Label Switching (MPLS). DM NVX network segments carry DM NVX multicast streams, DM NVX control, and ancillary traffic.

The location of other Crestron network devices relative to network infrastructure must be determined. A decision must be made as to whether the devices are to coexist on the same network segment as the DM NVX segment or on another segment that has traversal capabilities to the DM NVX segment, but is not multicast enabled. Networked AV devices other than DM NVX devices can be placed on the DM NVX



network segment if their bandwidth requirements are relative to the DM NVX endpoint bandwidth requirements.

A DM NVX device can have several addresses:

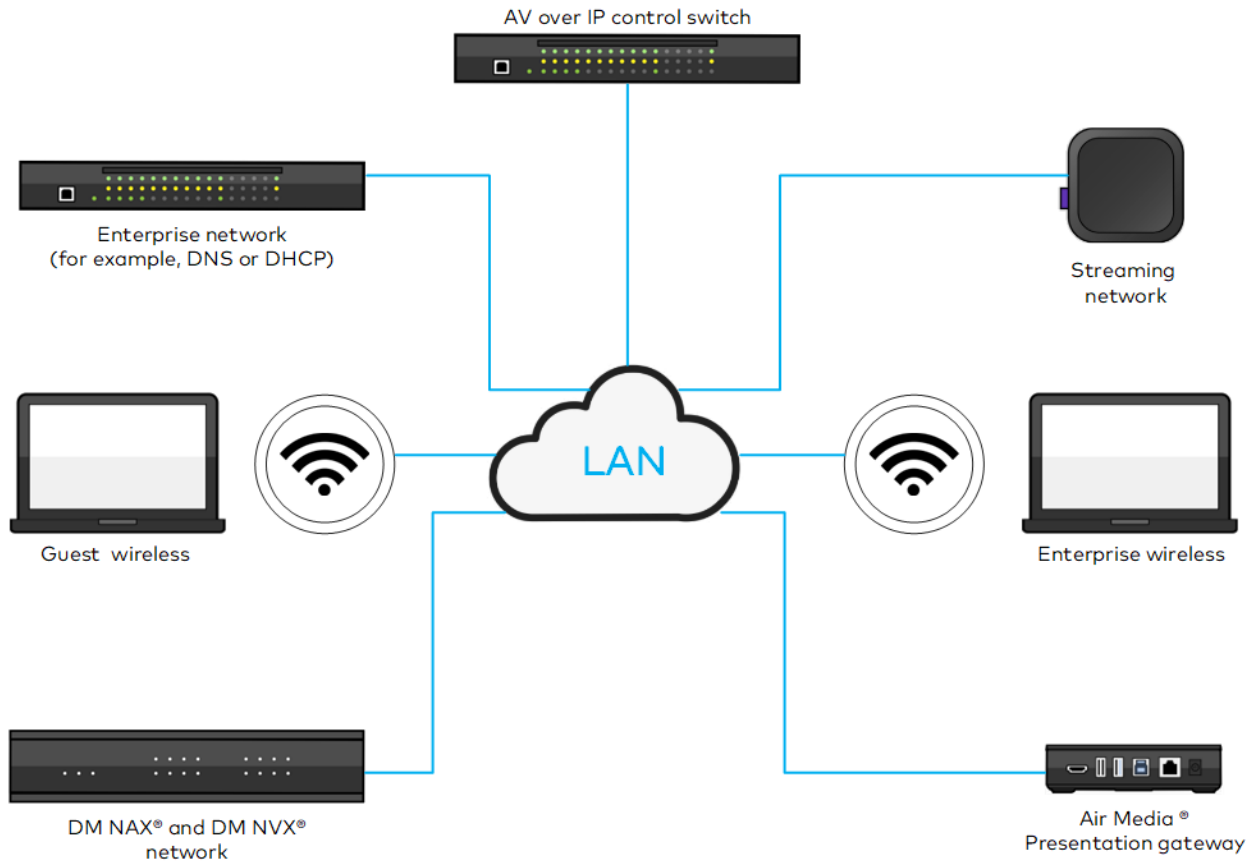
- An IP address is required for control of the device and access to the web configuration interface and console. For the DM-NVX-352, DM-NVX-352C, DM-NVX-363, and DM-NVX-363C, an IP address for the Dante® module is also required.
- Multicast addresses are required for multicast streams:
  - One multicast address is required for the primary multicast stream of audio and video.
  - Another multicast address is required for the DM NAX (AES67) audio multicast stream.
  - (DM-NVX-352, DM-NVX-352C, DM-NVX-363, and DM-NVX-363C only) A Dante multicast address is also required if a Dante multicast stream is used.

During endpoint configuration, the primary multicast address must be set manually to an address ending with an even number in the last octet. The DM NAX (AES67) audio multicast stream address can be automatically assigned to take the next odd-numbered multicast stream address (for example, a primary address of 239.8.0.10 will automatically assign a DM NAX address of 239.8.0.11). Alternatively, the DM NAX (AES67) audio multicast stream can be manually set.

A Dante multicast address is automatically assigned. The address must be unique and must not match a DM NVX multicast address. If the Dante multicast address does match a DM NVX multicast address, the DM NVX multicast address must be changed. Refer to the [Audinate website](#) for further information regarding Dante networking.

The DM NVX network segment must receive network services, including DNS, DHCP, Active Directory, and RADIUS services. Coordinate with IT staff to provide access to these services and to create the proper traversal rules to the DM NVX network segment.

## Network Segmentation Along Logical Boundaries



Consideration must be given to blocking at both the switch level and the network design level. DM NVX network switches must have enough switch fabric bandwidth to support full nonblocking bidirectional gigabit bandwidth on all ports simultaneously. This is a common feature in enterprise-grade gigabit network switches, but it should not be assumed that a switch is nonblocking or is configured as nonblocking.

Due to system size or physical layout, most DM NVX installations require multiple network switches. The network switches must connect to each other via a high-bandwidth uplink port. For network design purposes, assume that each DM NVX link consumes the full gigabit of link bandwidth.

Consider the example of a standard 48-port Gigabit Ethernet switch with one 40-gigabit uplink (or four 10-gigabit uplinks). Since each DM NVX endpoint consumes 1 Gbps of bandwidth, this switch can support up to 40 DM NVX devices in a nonblocking way. If more devices are connected, the uplink becomes a bottleneck, introducing the potential for difficult-to-diagnose blocking problems.

## Network Topologies

Connect devices such as control processors, touch screens, servers, personal computing devices, and DM NVX endpoints directly to network switches. In a large network with multiple layers of switch hierarchy, situate these devices at the network's edge. The network edge switches are often connected via uplinks to other switches and routers. This aggregates traffic from the network edge and forms the network's

core. The relationships between network switches and their interconnection to each other define the network's topology.

The following general rules apply for sizing network switches in terms of switch fabric nonblocking bandwidth:

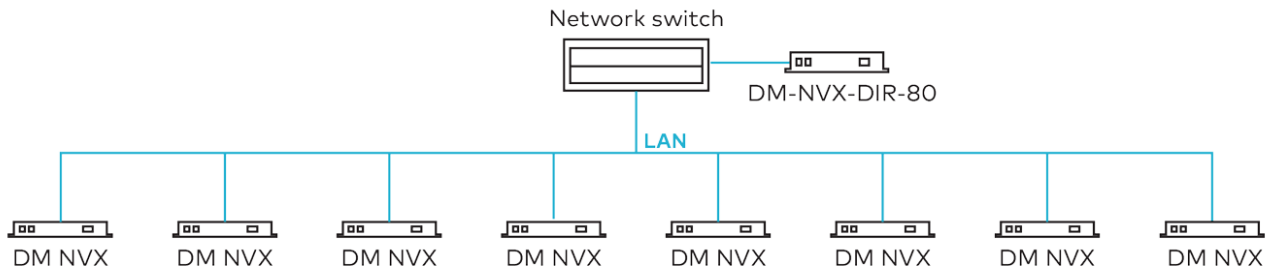
- The network core must support a nonblocking bandwidth and port speed. Nonblocking core bandwidth is calculated as 1 Gbps multiplied by the total number of either encoder endpoints or decoder endpoints (whichever is lesser), plus the number of USB extenders.
- Network edge switches must support a nonblocking bandwidth and uplink speed. Nonblocking edge bandwidth is calculated as 1 Gbps multiplied by the total number of either encoder endpoints or decoder endpoints (whichever is greater), plus the number of USB extenders.

## Star

The default recommended network topology is a star. Using a fully nonblocking switch, the star topology allows any combination of one or more endpoints to connect to any other combination of endpoints. It also easily allows the network to grow beyond a single switch if the uplink in the switch supports the maximum specified bandwidth.

For small DM NVX systems that employ only one network switch, use a nonblocking switch to prevent a bottleneck. Star topologies can accommodate very large DM NVX installations by using large modular switch frames.

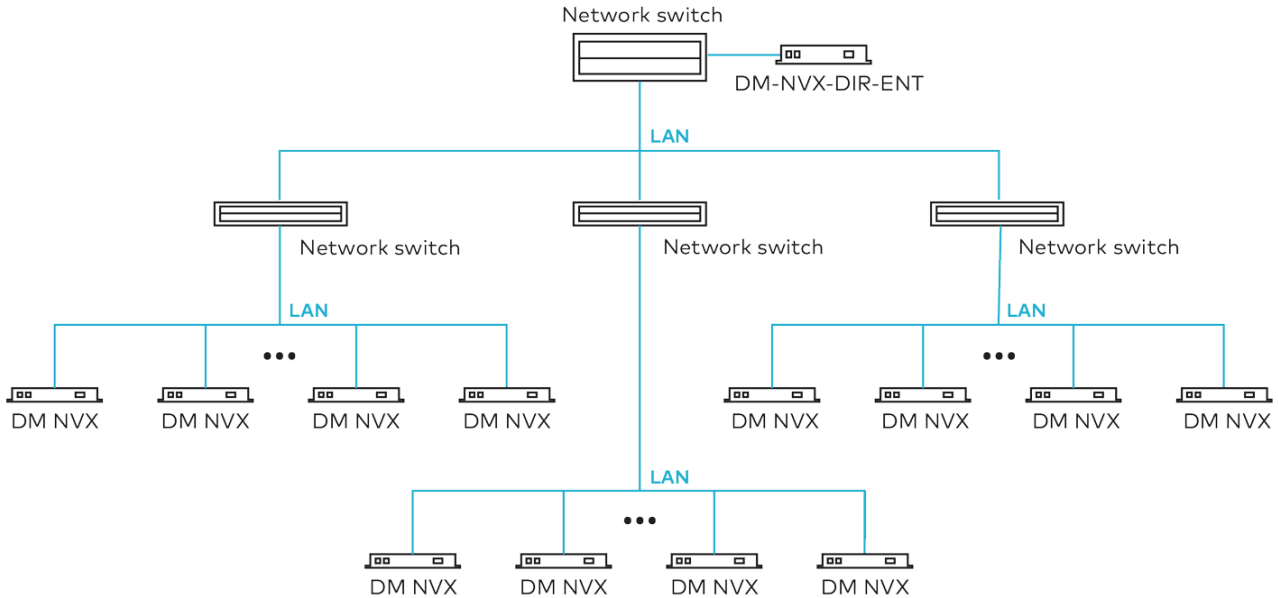
### Star Network Using a Nonblocking Switch



## Tree

A tree network is a combination of more than one star network existing on a core-switching infrastructure. The tree network allows failure in one part of the attached star networks without widely affecting the other star networks. Configure the core network, which is the larger network switch, for redundancy and scalability.

## Tree Topology Using Nonblocking Switches on a Core Network



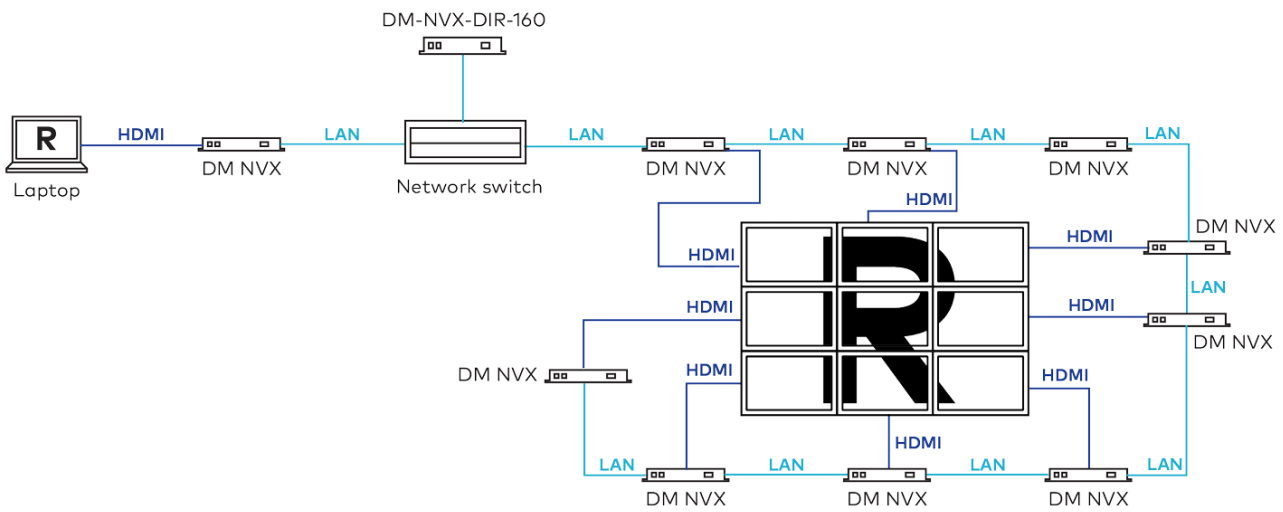
## Daisy Chain

Daisy chaining is appropriate for specific deployment applications such as video walls or jury boxes in which all displays receive the same video source as the first DM NVX endpoint in the chain.

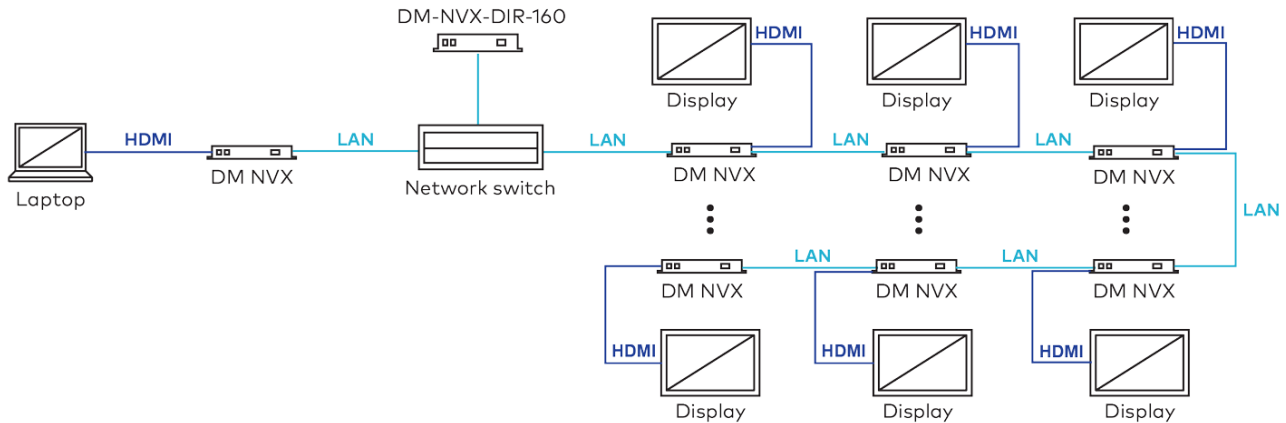
For video wall applications and any other application in which displays are near each other and share the same source, up to 16 endpoints can be daisy chained together. Larger video walls can be divided into individual daisy chains that each contain up to 16 endpoints.

For applications such as information signage in which more than one display is viewable concurrently without being dependent on the viewing of another display in the daisy chain, up to 64 endpoints can be daisy chained together.

### Daisy Chain Network Configuration for 3 x 3 Video Wall



## Daisy Chain Network Configuration for 12-Person Jury Box



Due to limited bandwidth for audio and video, a USB host or device on a daisy chained endpoint is not recommended. For maximum flexibility and the ability to reconfigure video walls with multiple sources, connect DM NVX endpoints directly to switches rather than daisy chain the endpoints.

## Other Topologies and Network Functionality

Other valid deployment topologies for DM NVX networks are ring and mesh. These deployments require project-specific discovery and configuration of the network switch. For projects using advanced topologies for deployments, a networking professional must be involved early in the network design process.

## Multicast Network Traffic

DM NVX networks rely on multicast functionality to send and receive video, even in the simplest case of a single encoder endpoint and a single decoder endpoint. Internet Group Management Protocol (IGMP) multicast in the Ethernet context replaces a fixed switching architecture in AV distribution.

Segregation of DM NVX traffic by using a VLAN or MPLS is usually the first step in enabling multicast. A VLAN or MPLS ensures that DM NVX traffic stays on the DM NVX network and does not route to other network segments and interfere with their operation. A VLAN or MPLS also ensures that traffic from other network segments does not interfere with DM NVX operation. Within that segment, all ports can be flooded by IGMP traffic regardless of whether that traffic was intended to be sent or received by a network device at any time. This will result in interference with network operation and can be a means of implementing a denial-of-service attack on a network if done maliciously.

To ensure that only traffic between intended multicast senders and multicast receivers appears at a given port, IGMP snooping must be enabled. IGMP snooping refers to the ability of the network switch to limit multicast traffic only to ports between intended senders and receivers. DM NVX devices support both versions of IGMP snooping: IGMPv2 and IGMPv3.

In order for the network switch to know where route limiting is implemented in the network for multicast traffic, an IGMP querier must be enabled. In most instances, a single network switch is selected by address to act as the IGMP querier; however, if multiple switches are configured as queriers,

the switch with the lowest numerical IP address on the network is typically the default. The default leave time for the querier (typically 125 seconds) is sufficient for a DM NVX network.

## Protocol Independent Multicast (PIM)

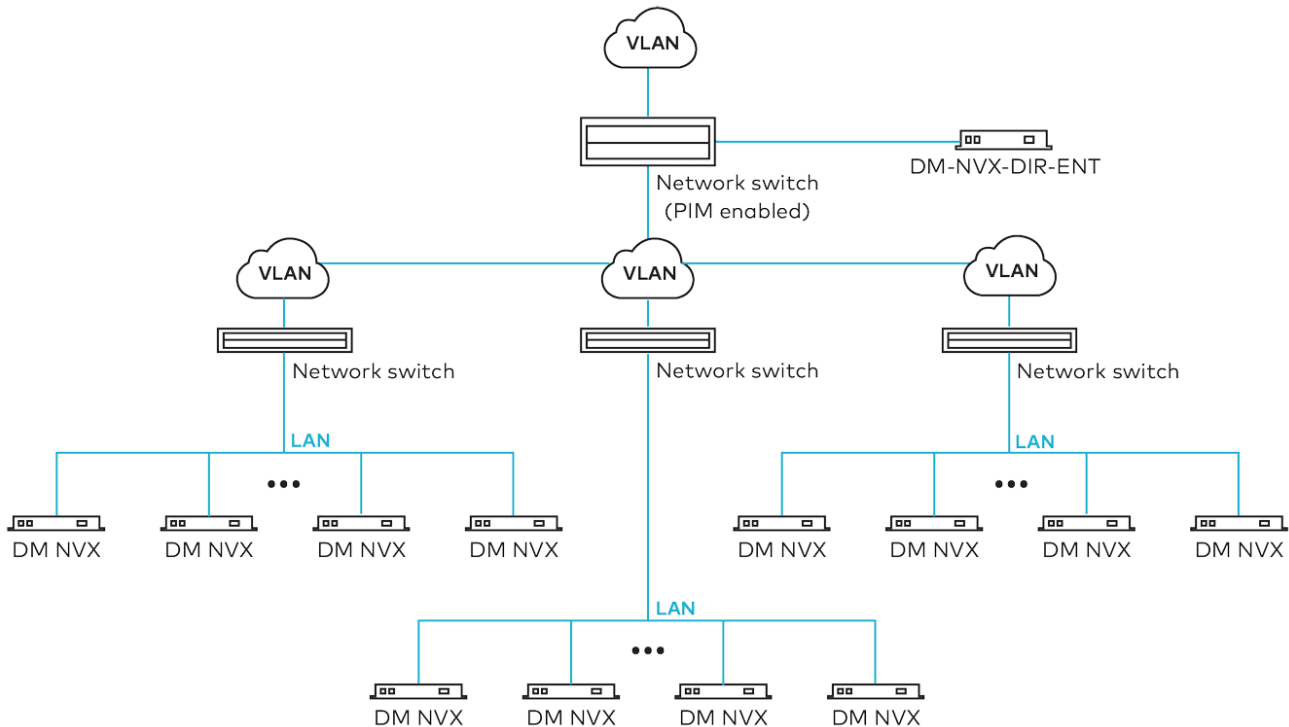
Protocol Independent Multicast (PIM) is a family of multicast routing protocols for IP networks. PIM offers one-to-many and many-to-many distribution of data. PIM modes include PIM Sparse Mode (PIM-SM), PIM Dense Mode (PIM-DM), and PIM Source-Specific Multicast Mode (PIM-SSM). PIM-SM must be used for large DM NVX networks. PIM-SM finds the shortest trees per path from a multicast source to multicast receivers on a network and is more scalable than PIM-DM or PIM-SSM. PIM-SM also prevents edge-to-switch link saturation and network loops in multicast traffic routing.

Enabling network Quality of Service (QoS) helps prioritize DM NVX traffic over other traffic at both the source and the destination. The highest priority on IGMP multicast traffic must be enabled. An example of enabling network QoS is as follows:

- Enable 802.1Q VLAN tagging support in the network switch.
- Enable and assign an 802.1P priority (for example, 5, 6, or 7) to DM NVX addresses and ports or IGMP protocol traffic.
- For other traffic, such as HTTP for web services or SSH for console access, assign lower priority numbers (for example, 0 to 4) based on their addresses, ports, or protocols.
- For successful QoS operation, ensure that all traffic types are included in the QoS setup.

**NOTE:** In addition to 802.1Q and 802.1P mentioned on the preceding page, other QoS protocols exist and are dependent on the switch vendor. The protocols are configured similar to the 802.1Q and 802.1P examples on the preceding page.

## PIM Multicast Routing Protocol for an IP Network



# Network Security

Security requires the support of particular capabilities within all devices on the network. DM NVX networks employ the following security features:

- 802.1X authentication is used to ensure that devices on the network have been authorized by the network administration team. Unauthorized devices are prevented from being added to the network and from having access to sensitive content.
- Active Directory services for endpoint administration can be used to ensure that administrative privileges for DM NVX devices can be centrally managed, granted, and revoked when necessary.
- DM NVX endpoints use Advanced Encryption Standard (AES) block cipher with Public Key Infrastructure (PKI) for stream encryption to protect content from unauthorized access as it crosses the network.
- SSL-based Secure Cresnet over IP (SCIP) for DM NVX control ensures that control processors and DM NVX devices communicate with the intended party device and that any unauthorized device on the network cannot monitor commands and status.
- SSH-based command line console access for device configuration and status protects the device console from access by unauthorized users.

SSL-based Cresnet over IP and SSH-based command line console access are automatically configured within DM NVX devices and support software. The designer should focus on 802.1X and Active Directory services within the design.

For additional information about deploying security with Crestron products, refer to the IP Considerations Guidelines for the [IT Professional Design Guide](#) and [Online Help Answer ID 5571](#).

# Network Design Considerations

Consider and apply the following network design best practices:

- Use nonblocking Layer 3 switches with port-based QoS such as 802.1P with 802.1Q at all stages of the design. Use sufficient switch bandwidth and port speeds. Less expensive switches cause loss of capability in the network.
- Choose switches with sufficient bandwidth at each segment (from edge to core) to accommodate a nonblocking architecture for DM NVX endpoints and any additional needs.
- Choose an appropriate network topology. Consider the network, including basic functionality and redundancy, and whether video walls or repetitive display signage is necessary. When planning a topology for the network, ensure that network IT staff and network architects are involved in the decisions.
- Enable an IGMP Querier on at least one switch in the DM NVX network. The IGMP Querier ensures that all switches know which multicast transmitters and receivers are connected to which switches in the network. Enabling an IGMP Querier on multiple switches causes the switch with the lowest value of IP source address to take priority and act as the Querier.
- Consult the network switch manufacturer's documentation to ensure that the uplinks are properly configured to support multicast traffic.
- Use switches that support 802.1X for endpoint authentication by implementing 802.1X endpoint authentication through TLS or MS-CHAP v2. Only authorized endpoints can communicate with the network.
- Ensure that VLANs or MPLS are implemented correctly. Leveraging existing switch infrastructure with VLANs or MPLS can cause conflicts with network provisioning needs. If a dedicated DM NVX network is not going to be used, VLANs must be implemented correctly with their own IP subnet, and MPLS networks must be configured correctly.
- Account for even-numbered DM NVX primary stream multicast address assignments since both primary and secondary multicast streams are possible. The assignment of multicast IP addresses for primary streams should be even numbered to allow the secondary stream to be assigned to the odd-numbered IP address, which is one higher than the primary stream's IP address. For multicast IP address assignment, refer to the guidelines in IETF RFC 3171.
- Use the Active Directory service for administration security:
  - Create an Active Directory group responsible for device administration.
  - Add device administrators to the group.
  - Add the group to the DM NVX device on the Device page of the web interface.

Use of the Active Directory service with DM NVX endpoint logins allows for easy, seamless, and better controlled access from a central directory authority with fewer risks.

- Use a DHCP server with link-layer filtering, and configure the IP addresses of endpoints using DHCP rather than static IP addresses. Using a DHCP server with short lease times, MAC address filtering, and sufficient address space for future needs makes network management easier.



- Enable IGMPv2 (DM NVX default) or IGMPv3 multicast snooping on all switches in the DM NVX network. This is a requirement for all designs in order to enable multicast delivery to multiple endpoints. Without IGMP Snooping enabled, switches that receive a multicast stream will transmit that stream to all ports simultaneously and saturate all network links.
- Use the Rapid Spanning Tree Protocol (RSTP) on the network to ensure that network loops are discoverable and to prevent deployment issues. Network management should account for RSTP discovery downtime when the network changes.
- Use and plan for DM NVX Director management of endpoints.
- Use daisy chaining to connect video wall endpoints or repeated displays. For video walls or endpoints that receive the same source from a single transmitter to feed multiple identical displays or in a video wall using a single source, it is simpler and less expensive to daisy chain the network.
- Disable IGMP Proxy functionality on Crestron control processors with routers to ensure that DM NVX multicast traffic does not interfere with the control processor. The CP3N, PRO3, and AV3 control processors, as well as DMPS3 presentation systems, should have IGMP Proxy functionality disabled when connected to the DM NVX network.
- Account for high-bandwidth external USB devices that are to be connected to DM NVX devices. Ensure that the bandwidth is accounted for as a separate 1 Gbps link since USB 2.0 bandwidth can consume 480 Mbps of the 1 Gbps link.
- Ensure that multicast IP addresses do not share the multicast MAC addresses. Sharing MAC addresses can cause network collisions and prevent normal operation of the DM NVX network.
- For Dante or AES67 audio networking with DM-NVX-352, DM-NVX-352C, DM-NVX-363, and DM-NVX-363C devices, additional network considerations may need to be addressed. For Ethernet switch guidelines, refer to the information provided on the [Audinate website](#).

## System Installation

The installation phase should ensure that the interaction among designer, installer, programmer, and end user is considered in all installation decisions.

## Endpoint Installation

Each DM NVX endpoint has unique installation requirements that depend on the following:

- Copper or fiber network connectivity of the endpoint
- Surface-mountable or card-based form factor
- Configuration of a combined encoder/decoder endpoint as a transmitter or a receiver or whether the endpoint is to switch dynamically between modes
- Additional local HDMI inputs that require configuration
- Use of source autoswitching or external switching control
- Additional audio sources that require encoding
- USB device or host functionality

- Whether the endpoint is part of a video wall or goes to multiple identical displays
- Requirement for Serial or IR control, or both

A Crestron touch panel can be linked through a spare LAN port on an endpoint. An audio input/output port can be repurposed to be a balanced line input for external analog audio input or for line output to a speaker system at the endpoint. The endpoint features and attached devices can be configured through programming or through the web interface.

Depending on the location of the control processor, serial and IR control of endpoint devices may be routed directly from that control processor. Access to HDMI and USB inputs and outputs can be provided through Crestron HDMI breakout devices for tabletops and walls.

Surface-mountable endpoints can be mounted in any orientation as required. Typical locations for surface-mountable endpoints include inside closets and drop ceilings, underneath tables, and in podiums. The specific location is determined by the following factors:

- Length of HDMI and USB cable runs
- Location of display and audio devices, network connectivity, power for the device, and physical security requirements

Serial and IR connectivity can be run at longer lengths and are typically not drivers of the endpoint mounting location.

For card-based endpoints, the DMF-CI-8 card chassis is placed in a closet or locked rack near the source and display devices. (To ensure that the environmental conditions in the rack meet the specifications outlined, refer to the [DMF-CI-8](#) product page on the Crestron website).

Serial and IR interfaces are not provided by card-based endpoints. The functionality must be provided by other means, such as through a local Crestron control processor on the DM NVX network.

For a maintenance-free installation, follow these guidelines:

- While considering cable distances, plan the optimum location for the surface-mountable or card-based endpoint, especially when distance-limited HDMI cables are involved.
- Avoid direct access to the endpoint by the end users. End users can induce failures or create a security risk due to unauthorized network access. Ensure that HDMI cables and wall plates are routed away from the endpoint appropriately.
- Use Category 2 certified HDMI cables to meet the minimum HDMI specifications at 4K or 1080p and to prevent problems such as degradation or loss of video or audio.
- Use properly terminated network cables. Network cabling must be either of the following:
  - Fiber that is terminated with a clean LC connector
  - Shielded or unshielded Cat 5e or higher copper cable that is terminated with an RJ-45 connector
- Observe the minimum bend radiuses and pull forces of cables to maintain cable integrity and prevent failures.
- Use plenum-rated cables in plenum spaces. Cables such as Crestron DigitalMedia™ plenum-rated cables are suitable. Fire-rated conduit for any fiber or copper cabling used in plenum spaces is also suitable.
- Practice good cable dressing, especially for card-based endpoints in racks.

- Manage EDID and HDCP proactively. For additional information, refer to the [Crestron DigitalMedia System Design Guide](#).
- HDR and deep color sources may not display correctly on endpoints with non-HDR or non-deep color displays. Ensure that the capabilities of the sources are matched to the capabilities of the displays.
- Use descriptive names for endpoints either through the DM NVX web interface or by replacing the default name in the Crestron Toolbox™ software. Do not rely on the default name or the Crestron IP ID.
- Physically secure the endpoint to a fixed point or rack to prevent movement over time. Secure all mounting points and mounting hardware for surfacemountable endpoints, card chassis, and card-based endpoints.
- Leverage use of the DM NVX Director server for endpoint configuration. The presence of a DM NVX Director server makes it easy to configure and control multiple DM NVX endpoints on the network.
- Thoroughly document the installation of endpoints, including drawings, lists, and descriptions, in order to provide detailed information for those who are to maintain or upgrade the DM NVX network.

## Network Installation

The installation of a DM NVX network varies greatly depending on a number of factors, including the following:

- Whether existing network infrastructure such as switches and cabling are to be reused
- Location of closets, racks, Intermediate Distribution Frames (IDFs), and Main Distribution Frame/Combined Distribution Frame (MDF/CDF) relative to the endpoints

For optimal installation and maintenance of the DM NVX network, follow these best practices:

- Use or repurpose existing infrastructure in DM NVX network installation cases.
- Use physical security for the network. Secure all network locations (MDF/CDF and IDF down to individual closets) from unauthorized access.
- Disable any unused ports on the network switches.
- Use a structured cabling approach such as those described in the TIA/EIA-568 standard. Include keystones in jacks and patch panels, shielded or unshielded solid copper conductor cable not exceeding 295 ft (90 m), and patch cables not exceeding 33 ft (10 m) to connect between patch panels. Use cable testers to verify the integrity of the installation and capacity for future expansion and backup.
- Use Crestron-verified switch configuration files when possible. Refer to [Online Help Article 1000314](#) for information on verified configurations.
- Configure the routing of external servers. If nondedicated DHCP, RADIUS, Active Directory, or other servers are used, ensure that the servers access the DM NVX network.
- Thoroughly document all DM NVX network hardware and configurations.

# Crestron Service Provider Handoff

Consult the Crestron Service Providers (CSPs) once the DM NVX network and endpoints are installed and interconnected. Typical activities of a CSP in a DM NVX installation may include the following:

- Writing appropriate control programs for controllers on the network
- Programming appropriate serial and IR control for endpoint devices
- Configuring external analog and digital audio source input and output
- Configuring video walls
- Designing button and UI features for control surfaces such as touch screens and switches
- Managing EDID for endpoint devices

As CSPs implement and deploy the program, installers and designers should test and review the functionality. The programmer must document the program functionality to avoid future issues.

# Resources

The following resources are provided for the DM NVX® AV-over-IP.

**NOTE:** You may need to provide your Crestron.com web account credentials when prompted to access some of the following resources.

## Crestron Support and Training

- [Crestron True Blue Support](#)
- [Crestron Resource Library](#)
- [Crestron Online Help \(OLH\)](#)
- [Crestron Technical Institute \(CTI\) Portal](#)

## Programmer and Developer Resources

- [help.crestron.com](http://help.crestron.com): Provides help files for Crestron programming tools such as SIMPL, SIMPL#, and Crestron Toolbox™ software
- [developer.crestron.com](http://developer.crestron.com): Provides developer documentation for Crestron APIs, SDKs, and other development tools

## Product Certificates

To search for product certificates, refer to the [Product Certificates](#) section of the Crestron Resource Library.

## Related Documentation

- [DM NAX® Audio-over-IP Network Design Guide](#)
- [Crestron Design Database](#)

