DATA SHEET

# N2300 Series N2312 4K Encoder

NMX-ENC-N2312 (FGN2312-SA), Stand Alone

NMX-ENC-N2312 -C (FGN2312-CD), Card


## Overview

**The NMX-ENC-N2312 Encoder and NMX-DEC-N2322 Decoder provide a flexible, feature-rich, and simple-to-deploy Digital Media Distribution and Switching solution that can be used in 4K applications with resolutions up to 4096x2160, with support for HDCP 2.2. This motion-based wavelet codec solution delivers video with nearly imperceptible latency at an incredibly low 200 Mb/s bandwidth allowing 4K distribution over standard gigabit Ethernet networks.**

**Any source can be sent to one or more displays by routing through layer-2 / layer-3 switches utilizing standard Cat5e cable. The NMX-ENC-N2312 includes standard features like input scaling, bi-directional serial, IR, embedded 7.1 audio, and KVM-over-IP extension. It also comes in a card version compatible with SVSI's N9206 card cage for high-density applications.**

**Features**

- **Design Flexibility** – Start as small as 1x1 and grow the system in increments of single sources and devices by simply adding additional encoders and decoders.
- **Power Over Ethernet (POE)** – eliminates requirement for local power supply and speeds installation. Units can still be powered locally from 12VDC allowing for easy rack-mountable, high-density installations
- **Infrared (IR)** – Emitter connection allows control of IR-only display devices.
- **Fast Install** – With Phoenix connectors for Power, IR, RS232 serial, and analog audio interfaces
- **Balanced and Unbalanced Audio** – Embedded 7.1 digital audio or balanced/unbalanced analog audio
- **Pass Through HDMI** – allows easy installation with local display such as desktop PC applicaitons
- **Multiple Connection Options** – RJ-45 and SFP network connectors and HDMI video connections
- **KVM** – Single USB-B for KVM applications
- **Native NetLinx** – NetLinx Studio will easily recognize the device

**Specifications**

| VIDEO | |
|---|---|
| Digital Video Input | HDMI 2.0, DVI-D* (through adapter), Dual-Mode DisplayPort (DP++)*<br><br>*These signal types are supported through a passive adapter |
| Analog Video Input | HD-15 VGA |
| Video Output | Network video over Ethernet via RJ45 port or SFP via 1G SFP port, HDMI, DVI-D*<br><br>*These signal types are supported through a passive adapter |
| Formats | HDMI 2.0, DVI-D (through adapter), Dual-Mode DisplayPort (DP++), HDCP 2.2 content protection support, RGBHV<br>DVI-D and Dual-Mode DisplayPort (DP++) are supported through a passive adapter |
| Progressive Input Resolutions | Supports 4K30 4:2:0 and most common HD resolutions up to 1920x1200<br>See NMX-ENC-N2312 Installation Manual for all supported resolutions<br><br>HDMI and DVI (Progressive)<br>•Pixel clock between 27 MHz – 300MHz<br>•Minimum resolution of 720x480p60<br>•Maximum horizontal resolution of 4096 or a vertical resolution of 2160*<br>•Common acceptable resolutions include: 720x480p60 – 480p, 720x576@50, 800x600p60, 1024x768p60, 1280x720@60Hz - 720p60, 1600x1200@60Hz, 1920x1080@60Hz - 1080p60, 3840x2160(4:2:0)@30Hz - UHD30 aka 4K30, 4096x2160(4:2:0)@30Hz - DCI 4K30 |
| Interlaced Input Resolutions | Supports 1080i60<br>See NMX-ENC-N2312 Installation Manual for all supported resoltuions<br><br>HDMI and DVI (Interlaced)<br>•1920x1080@50Hz - 1080i50<br>•1920x1080@60Hz - 1080i60<br><br>Note: Interlaced resolutions will be de-interlaced if scaled on the decoder; otherwise, the interlaced signal will pass through to the display |
| Analog Input Resolutions | Supports most common HD resolutions up to 1920x1200<br>See NMX-ENC-N2312 Installation Manual for all supported resoltuions<br><br>VGA<br>•Pixel clock between 27 MHz - 165 MHz<br>•Minimum resolution of 640x480<br>•Maximum horizontal resolution of 1920 or a vertical resolution of 1200<br>•Common acceptable resolutions include: 640x480p60, 720x480p60 – 480p, 720x576@50, 800x600p60, 1024x768@60Hz, 1280x720@50Hz |

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|---|---|
| | (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz (reduced blanking)<br><br>Note: Input resolutions supported @60Hz refresh rates are also supported @59.94Hz<br><br>The N2312 Encoder does not accept Composite or S-Video (YC) |
| Analog-To-Digital Conversion | 8-bit 165 MHz per each of three color channels |
| Color Space | 4:2:0 4K30, 4:2:2 – HD |
| LocalPlay/HostPlay | 8 playlists |
| HostPlay | 1 image/list |
| Note | Jumbo Frames Required |
| Video Wall Construction | Supported within the NMX-DEC-N2322, the N2300 Series is not compatible with SVSI Windowing Processors at this time |
| Network Video Recording | Not compatible with SVSI NVR at this time |

| **AUDIO** | |
|---|---|
| Input Signal Types | Embedded audio on HDMI (DVI-D through adapter) or Analog Stereo (Balanced or Unbalanced) |
| Output Signal Types | Ethernet, Embedded audio on HDMI or DVI-D (through adapter) |
| HDMI Audio Formats | 8ch PCM |
| Analog Audio Format | Stereo 2-channel |
| Analog-To-Digital Conversion | 48 kHz |

| **KEYBOARD AND MOUSE** | |
|---|---|
| Keyboard & Mouse | Connect the Decoder to the keyboard and mouse, and an N2300 Series Encoder to the PC being controlled |

| **LATENCY** | |
|---|---|
| Latency | 17-ms at 60 fps for 1920x1080 and lower resolutions<br>34-ms at 30 fps for 4K30<br><br>NOTE: This is the combined encode plus decode latency. Total latency from source to screen will also include any network latency.<br>Scaling adds one frame of latency (17ms at 60fps) |
| Switching | Up to 1.5s delay, not seamless |

| **BANDWIDTH** | |
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| Bandwidth | Approximately 160 Mb/s<br><br>Note: Minimum bandwidth is 50 Mb/s for resolutions <= 1080p60 |

| **COMMUNICATIONS** | |
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| Ethernet - PO | 10/100/1000 Mbps, auto-negotiating, auto-sensing, full/half duplex, DHCP, Auto IP, and Static IP |
| Ethernet - P1 | 1 Gbps port which accepts compatible fiber transceivers or direct attach cables, DHCP, Auto IP, and static IP |
| HDMI | HDCP, EDID management |

| **PORTS** | |
|---|---|
| +12V 2A | One 12 Volt DC power input |
| P0 | 8-wire RJ45 female<br>10/100/1000 Mbps 10/100/1000Base-T auto-sensing gigabit Ethernet switch port<br>Provides network connection, network AV video, and power to the Encoders and Decoders PoE power |
| P1 | 1-Gbps SFP port (SFP fiber transceiver or direct attach cable not included)<br>Provides network connection and networked AV video |
| IR IN (front panel) | 3-pin terminal Phoenix connector. Provides Infrared (IR) input only and passes signal back to connected decoder (33-60 kHz; typically 39 kHz) IR receiver is necessary (not included) |
| IR OUT | •2-pin terminal Phoenix connector<br>•Provides Infrared (IR) output only (33-60 kHz; typically 39 kHz). Emitter is necessary (not included) |
| RS232 | 3-pin terminal Phoenix connector which provides a serial control interface. Full duplex communication. Available terminal speed settings: 1200-115200 baud rate |
| AUDIO | 5-pin terminal Phoenix connector which provides user-selectable balanced/unbalanced input<br>Dedicated audio input |
| HDMI OUT | HDMI video output (passive pass-through from HDMI IN only) |
| HDMI IN | HDMI video input |
| VGA IN | DB15 analog input |

| **CONTROLS AND INDICATORS – FRONT PANEL** | |
|---|---|
| RESET Button | Recessed pushbutton<br>Press to initiate a 'warm restart' causing the processor to reset, but not lose power. A reset does NOT affect the current settings |
| ID Button | Recessed pushbutton<br>Press to send a notification out on the network to identify the unit (the notification causes a pop-up dialog in N-Able and N-Command) |
| POWER LED | On solid (green) when operating power is supplied (via PoE or local power supply)<br>This activity is also shown by the **PWR** LED on the rear panel |
| STATUS LED | On flashing (green) when there is software activity<br>This activity is also shown by the STAT LED on the rear panel |

| **CONTROLS AND INDICATORS – REAR PANEL** | |
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| | |
|---|---|
| PWR LED | Same as **POWER** LED described above |
| HDMI LED | On (green) when there is a connection to a valid HDMI source but will not light for VGA source |
| STAT LED | Same as **STATUS** LED described above |
| STRM LED | On (green) when the unit is streaming video |
| FAN | None |

| **POWER SUPPLY** | |
|---|---|
| Power Supply, External, Optional | 2.0 Amp @ 12 Volts DC; 100-240 Volts AC power supply; optional NMX-ACC-N9312 (FGN9312) |
| Power over Ethernet (PoE), External, Optional | Can be powered via a PoE switch or other equipment with a PoE source. Conforms to IEEE 802.3af Class 3 (802.3at Type 1)<br><br>NOTE: In order for the unit to receive Power over Ethernet (PoE), it must be connected to a switch or other equipment that has a PoE PSE (Power Sourcing Equipment) port<br><br>Warning: Do not run wiring that is connected to a PoE PSE port outside of the building where the PSE resides. It is for intra-building use only |

| **ENVIRONMENTAL** | |
|---|---|
| Temperature | 32° to 104°F (0° to 40°C) |
| Humidity | 10% to 90% RH (non-condensing) |
| Heat Dissipation | Up to ~44 BTU/hr |

| **GENERAL** | |
|---|---|
| Dimensions (HWD) | 1.05” x 7.888” x 5.5” (2.67 cm x 20.04 cm x 13.8 cm) |
| Weight | 1.6 lbs (0.66 kg) |
| Mounting Options | Stand alone, surface mount, wall mount, or rack mount<br>Surface and wall mounting requires (not included):<br>•NMX-ACC-N9101 (FGN9101), Mounting Wings for SVSI N-Series Encoders and Decoders<br><br>Rack mounting requires one of the following (not included):<br>•NMX-ACC-N9102 (FGN9102), 1RU Rack Shelf for Two Side-by-Side for SVSI N-Series Encoders and Decoders<br>•NMX-ACC-N9206 (FGN9206), 2RU Rack Mount Cage with Power for Six SVSI N-Series Card Units |
| Regulatory Compliance | FCC, CE, and NTRL |
| Recommended Accessories | •NMX-ACC-N9312 (FGN9312), Power Supply 12V External<br>•NMX-ACC-N9382 (FGN9382), 1RU Power Supply 16-Channel 12V for up to 16 SVSI N-Series Encoders and Decoders<br>•NMX-ACC-N9101 (FGN9101), Mounting Wings for SVSI N-Series Encoders and Decoders<br>•NMX-ACC-N9102 (FGN9102), 1RU Rack Shelf for Two Side-by-Side SVSI N-Series Encoders and Decoders<br>•NMX-ACC-N9206 (FGN9206), 2RU Rack Mount Cage with Power for Six SVSI N-Series Card Units |

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**Founded in 1982 and acquired by HARMAN in 2014, AMX® is dedicated to providing AV solutions for an IT World. AMX solves the complexity of managing technology with reliable, consistent and scalable systems comprising control, video switching and distribution, digital signage and technology management. AMX systems are deployed worldwide in conference rooms, classrooms, network operation/command centers, homes, hotels, entertainment venues and broadcast facilities, among others. AMX is part of the HARMAN Professional Group, the only total audio, video, lighting, and control vendor in the professional AV market. HARMAN designs, manufactures and markets premier audio, video, infotainment and integrated control solutions for the automotive, consumer and professional markets. Revised 11.17.16. ©2016 Harman. All rights reserved. Specifications subject to change.**

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