DATA SHEET

JPEG 2000 4K60 4:4:4 UHD Video Over IP Encoder with PoE, KVM, AES-67

NMX-ENC-N2412A (FGN2412A-SA), Stand Alone
NMX-ENC-N2412A-C (FGN2412A-CD), Card

Overview

The NMX-ENC-N2412A is the first low-latency Encoder to distribute video at resolutions up to 4K60 4:4:4 over Gigabit Ethernet networks. Utilizing JPEG2000 encoding, the N2412A and N2422A encoders and decoder (N2400 Series) deliver cinema quality video with just two frames of latency. Furthermore, these products support HDMI 2.0 and HDCP 2.2, offering increased compatibility with 4K sources and displays.

The N2400 Series encoders and decoders use the same control APIs, software, and web interfaces as the existing Networked AV products, which have been optimized to market needs as a result of years of field experience.

Common Applications

4K60 video is popular in casinos, sporting arenas, museums and other venues where high-resolution large-scale video distribution is required. The N2400 Series is also perfect for lecture halls, university campus distribution, active learning spaces, or anywhere viewers with a discerning eye will be expecting the beauty of 4K60.

Features

- **4K60 4:4:4 Support –** The N2400 Series can be used to support today's 4K content without modifying the color space or reducing the frame rate.
- **Operates over Gigabit Ethernet –** Distribute video over cost effective Gigabit Ethernet switches using Cat5 cable already installed in a location. This also allows for greater switching scalability vs. a solution that depends on 10 GbE.
- **Low Latency –** Distribute video over an IP network with just two frames of latency which is nearly imperceptible.

- **HDMI 2.0 and HDCP 2.2 Support –** By incorporating HDMI 2.0 and HDCP 2.2, the N2400 Series products are compatible with all the latest 4K sources and displays.
- **PoE+ Powered –** The N2400 Series can operate using PoE+ power from the network switch, simplifying installation and reducing installation cost.
- **Native NetLinx –** Simplifies integration with AMX control to reduce cost of installation.

Specifications

VIDEO	
Digital Video Input	HDMI, DVI-D, Dual-Mode DisplayPort (DP++), RGB/YUV DVI-D and Dual-Mode DisplayPort (DP++) are supported through a passive adapter
Analog Video Input	HD-15 VGA, Component Component is supported through a passive adapter
Video Output	Network video over Ethernet via RJ45 port or fiber via 1G SFP port, HDMI, DVI-D 30 – 800 Mbps depending on resolution and content. DVI-D is supported through a passive adapter
Formats	HDMI, DVI-D (through adapter), HDCP content protection support, RGBHV, YPbPr
Progressive Input Resolutions	HDMI and DVI (Progressive) • Pixel clock between 27 MHz - 600 MHz • Minimum resolution of 720x480p • Maximum horizontal resolution of 4096 or a vertical resolution of 2160 Common acceptable resolutions include: 720x480@60Hz (480p60), 1024x768p60, 1280x720@60Hz (720p60), 1600x1200@60Hz, 1920x1080@60Hz (1080p60), 2560x1440@60Hz (QHD60), 3840x2160@30Hz (UHD30 aka 4K30), 4096x2160@30Hz (DCI 4K30), 3840x2160@60Hz (aka 4K UHD or 4K60), 4096x2160@60Hz (DCI 4K)
Interlaced Input Resolutions	HDMI and DVI (Interlaced) 1920x1080@50Hz (1080i50), 1920x1080@60Hz (1080i60)
Analog Input Resolutions	VGA 640x480@60Hz, 720x480@60Hz (480p), 20x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (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) Component 480p, 576p, 720p50, 720p60, 1080p24, 1080i50, 1080i60, 1080p30, 1080p50, 1080p60
Note	Input resolutions supported @60Hz refresh rates are also supported @59.94Hz
Output Resolutions	Matched to inputs (no scaling)
Analog-To-Digital Conversion	8-bit 300 MHz per each of three color channels

Note	The N2412A Encoder does not accept Composite or S-Video (YC)

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 output refers to pass-through video on the HDMI OUT port
HDMI Audio Formats	8ch PCM
Analog Audio Format	Stereo 2-channel
Analog-To-Digital Conversation	16-bit 48 kHz

LATENCY	
Latency	17-ms at 60 fps.
Note	Note: To calculate an end-to-end latency value, add the given Encoder latency (shown above) to your Decoder's latency (which is provided in the Decoder's Specifications sheet)

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

PORTS	
+12V 3A	One 12 Volt DC power input
P0	8-wire RJ45 female for JPEG2000 compressed networked AV video 10/100/1000 Mbps 10/100/1000Base-T auto-sensing gigabit Ethernet switch port POE+ Powered Device support
P1	SFP port (SFP fiber transceiver or direct attach cable not included) for JPEG2000 compressed networked AV video
IR	2-pin terminal Phoenix connector Provides Infrared (IR) output only (33-60 kHz; typically 39 kHz). Emitter may be necessary (not included)
RS232	3-pin terminal Phoenix connector Provides a serial control interface. Full duplex communication. Available terminal speed settings: 9600-115200 baud rate
AUDIO	5-pin terminal Phoenix connector

	Provides user-selectable balanced/unbalanced input. Dedicated audio input
HDMI OUT	HDMI video output (passive pass-through from HDMI or VGA IN)
HDMI IN	HDMI video input
VGA IN	DB15 analog input
USB connectors (front panel)	One USB-B and two USB-A control inputs
IR IN (front panel)	3-pin terminal Phoenix connector Provides Infrared (IR) input only (33-60 kHz; typically 39 kHz). Receiver required (not included)

CONTROLS AND INDICATORS – FRONT PANEL	
RESET Button	Recessed pushbutton 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 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) This activity is also shown by the PWR LED on the rear panel
STATUS LED	On flashing (green) when there is software activity This activity is also shown by the STAT LED on the rear panel

CONTROLS AND INDICATORS – REAR PANEL	
PWR LED	Same as POWER LED described above
HDMI LED	On (green) when there is a connection to a valid video source
STAT LED	Same as STATUS LED described above
STRM LED	On (green) when the unit is streaming video

POWER SUPPLY	
Power Supply, External, Not included	3.0 Amp @ 12 Volts DC; 100-240 Volts AC power supply; not included in shipment. NMX-ACC-N9313 (FGN9313)
Power over Ethernet (PoE+), External	Can be powered via a PoE+-capable switch or other equipment with a PoE+ source Conforms to IEEE 802.3at Type 2

ENVIRONMENTAL	
Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	Up tp ~102 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	1.65 lbs (0.75 kg)
Mounting Options	Stand alone, surface mount, wall mount, or rack mount Surface and wall mounting requires (not included): •NMX-ACC-N9101 (FGN9101), Mounting Wings for SVSI N-Series Encoders and Decoders Rack mounting requires one of the following (not included): •NMX-ACC-N9102 (FGN9102), 1RU Rack Shelf for Two Side-by-Side for SVSI N-Series Encoders and Decoders •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-N9101 (FGN9101), Mounting Wings for SVSI N-Series Encoders and Decoders •NMX-ACC-N9102 (FGN9102), 1RU Rack Shelf for Two Side-by-Side SVSI N-Series Encoders and Decoders •NMX-ACC-N9206 (FGN9206), 2RU Rack Mount Cage with Power for Six SVSI N-Series Card Units

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