H.264 Encoders

NMX-ENC-1100, Multi-Format Input (FG3201-01)
NMX-ENC-1105, Multi-Format + SDI Input (FG3201-02)

Overview

AMX H.264 Encoders connect directly to sources including PCs, cameras and set-top boxes and provide the on-ramp to stream the video on a network. Once video is on the network, it can be played back in a variety of situations such as on displays throughout a building, in a window within a digital signage message, or using a network media solution like AMX's Vision2. These robust encoders offer standardized, bandwidth-efficient encoding for SD and HD sources.

Common Applications

- Use H.264 Encoders to stream live TV to any digital signage player that support streaming video to provide live video within a message
- Connect an H.264 Encoder to a camera to capture lectures or training to make it available live and to record it for playback using a network media solutions such as Vision2
- Use H.264 Encoders to stream events such as all hands meetings, press conferences or earnings calls to a variety of audiences watching live throughout the world on conference room displays, PCs or mobile phones

Features

- **Multi-Format Video Input** - The NMX-ENC-1100 and NMX-ENC-1105 both feature a multi-format input to support digital and analog video sources
- **SD-SDI and HD-SDI Support** - The NMX-ENC-1105 features an SDI input
- **Audio/Video Pass Through** - Allows encoders to be daisy chained together for low and high bandwidth streams, or to monitor your encoded source
- **Built-in Ethernet Switch** - Install an encoder along with other Ethernet-based devices such as an Enova DVX or Modero Touch Panel in a location without having to install additional Ethernet outlets
- **Audio Level Meter** - The front of the encoders feature an audio level meter making it easy to validate that user audio is being picked up

Specifications

GENERAL	
Dimensions (HWD)	1 5/8" x 8 3/4"x 5 1/8" (42.16 mm x 221.64 mm x 130.81 mm)
Weight (FG3201-01)	FG3201-01: 2.25 lbs (1.02 Kg)

Weight (FG3201-02)	FG3201-02: 2.3 lbs (1.04 Kg)
Mounting Options	Rack Mount: NMX-VRK, V Style Rack Mounting Shelf, 12" Depth (FG3201-60) Surface Mount: AVB-VSTYLE-SURFACE-MNT, V Style Single Module Surface Mount Brackets (FG1010-722)
Regulatory Compliance	FCC IC CE IEC 60950-1 cULus 60950-1 VCCI C-Tick RoHS / WEEE Compliant
Included Accessories	PSR4.4, 13.5 VDC, 4.4 A Power Supply with 3.5 mm Retained Phoenix Connector (FG423-46)
Optional Accessories	•NMX-VRK, V Style Rack Mounting Shelf, 12" Depth (FG3201-60) • AVB-VSTYLE-SURFACE-MNT, V Style Single Module Surface Mount Brackets (FG1010-722) • CC-DVI-5BNCM, DVI to 5 BNC Male Cable (FG10-2170-08) •CC-DVI-RCA3M, DVI to 3 RCA Male Cable (FG10-2170-09) •CC-DVIM-VGAF, DVI to HD-15 Female Adapter (FG10-2170-13) •CC-DVI-SVID, DVI to S-Video Cable (FG10-2170-10)

ACTIVE POWER REQUIREMENTS	
Power Connector	(1) 2-pin, locking 2.5 mm Phoenix (male) connector
Power Consumption	13 W, (Max) 10 W, (Typ)
Operating Voltage	10 VDC to 18 VDC

POWER SUPPLY	
External, Included	PSR4.4, 13.5 VDC, 4.4 A Power Supply with 3.5 mm Retained Phoenix Connector (FG423-46), included

ENVIRONMENTAL	
Temperature (Operating)	0° C to 40° C (32° F to 104° F)
Temperature (Storage)	-20° C to 70° C (-4° F to 158° F)
Humidity (Operating)	5% to 85%, non-condensing

CONTROL	
NetLinx	Master Mode: URL, Auto ICSP Security: Yes* Password protected master connection, AMX encrypted ICSP*

FUNCTIONAL CAPABILITIES	
Management Interface	Web Page: HTML5, tablet and phone compatible

MULTI-FORMAT VIDEO WITH DVI-I	
Multi-Format Input Connections	(1) DVI-I
Multi-Format Supported Video	HDMI, DVI, RGB, S-Video, Composite, Component (Y/Pb/Pr) See specifications for each signal style over DVI-I for more detail
Pixel Clock (Max)	120 MHz
Input Equalization	Yes
Input Re-Clocking (CDR)	Yes

COMPONENT (Y/Pb/Pr) WITH DVI-I	
Input Level	1 Vp-p nominal
Input Impedance	75 Ohms, nominal
Video Input Resolutions	720x480i@60, 720x576i@50, 720x576p@50, 720x480p@60, 1280x720p@50, 1280x720p@60, 1920x1080i@50, 1920x1080i@60
Note	Requires DVI-I to 3 RCA Adapter or DVI-I to 5 BNC Adapter AC coupled: Insensitive to DC offset

S-VIDEO WITH DVI-I	
Input Level	1 Vp-p nominal
Input Impedance	75 Ohms, nominal
Video Input Resolutions	720x480i@60, 720x576i@50
Note	Requires DVI-I to S-Video Adapter AC coupled: Insensitive to DC offset

COMPOSITE WITH DVI-I	
Input Level	1 Vp-p nominal
Input Impedance	75 Ohms, nominal
Video Input Resolutions	720x480i@60, 720x576i@50
Note	Requires DVI-I to 3 RCA Adapter or DVI-I to 5 BNC Adapter AC coupled: Insensitive to DC offset

RGBHV WITH DVI-I	
Supported Video	RGBHV, RGBS, RGsB
Input Level	1 Vp-p nominal
Input Impedance	75 Ohms, nominal
Sync Input Level	2 to 5 Vp-p
Sync Input Impedance	2.5 pf Typical, 10pF Maximum
Video Input Resolutions	720x480p@60, 800x600@60 & @75, 1024x768@60, @70 & @75, 1280x720@50, 1280x768@59
Note	Requires DVI to HD15 Adapter or DVI-I to 5 BNC Adapter

DVI WITH DVI-I	
Supported Video	DVI 1.0
Sync Input Level	2 to 5 Vp-p
Sync Input Impedance	2.5 pf Typical, 10pF Maximum
Video Input Resolutions	720x480p@60, 800x600@60, 800x600@75, 1024x768@60, 1024x768@70, 1024x768@75, 1280x720@50, 1280x720@60, 1280x720p@60, 1280x768@59, 1920x1080i@50, 1920x1080i@60, 1920x1080p@24, 1920x1080p@25, 1920x1080p@30
Note	Format: RGB

HDMI WITH DVI-I	
HDCP Compliance	None HDCP protected content will not be streamed
Data Rate	62 Megapixels (1080p @ 30), Maximum
Deep Color Support	Yes, supported on the input Signal will be converted to 4:2:2 YCbCr for encoding Deep color itself is not encoded
Color Space Support	RGB and YCbCr color spaces are supported Signal will be converted to 4:2:2 YCbCr for encoding
3D Format Support	None
Video Input Resolutions	720x480p@60, 800x600@60, 800x600@75, 1024x768@60, 1024x768@70, 1024x768@75, 1280x720@50, 1280x720@60, 1280x720p@60, 1280x768@59, 1920x1080i@50, 1920x1080i@60, 1920x1080p@24, 1920x1080p@25, 1920x1080p@30
Audio Format Support	48 kHz stereo LPCM
Note	Requires DVI to HDMI Adapter

SDI (FG3201-02)	
Connector Type	(1) BNC
Supported Video	SD-SDI, HD-SDI
Input Level	800 mVp-p (+/- 10%)
Input Impedance	75 Ohm
Audio Format Support	48 kHz stereo LPCM
Note	SDI support available in FG3201-02; FG3201-01 does not support SDI

ANALOG AUDIO	
Input Connection	(1) 3.5 mm mini-stereo audio jack
Input Level (Max)	1.4 Vrms (approximately +5 dBu), unbalanced
Input Impedance	> 12 kOhm

HDMI VIDEO PASS THRU (FG3201-01 and FG3201-02)	
Connector Type	(1) HDMI Type A Female
Signal Type	HDMI
Video Resolution	Matches the resolution of the video input currently being encoded
Output Scaling	None
Content	Mirrors the video signal currently being encoded from the multi-format DVI-I connection or SDI connection

Note	Video pass thru allows the viewer to preview video being encoded

SDI VIDEO PASS THRU (FG3201-02)	
Connector Type	(1) BNC
Output Level	BNC Connection: 800 mVp-p (+/-10%)
Output Impedance	75 Ohm
Content	Mirrors the SDI video input

AUDIO PASS THRU (FG3201-01 and FG3201-02)	
Connector Type	(1) 3.5 mm Mini-Stereo Jack
Output Level (Max)	1.4 Vrms (approximately +5 dBu), unbalanced

VIDEO ENCODING	
Video Codec	H.264 (MPEG-4 Part 10)
Bit Rates	1 Mb/s to 12 Mb/s for streamed resolutions greater than 480i For smaller resolutions, please see the Operation/Reference guide
Rate Control	Constant Bit Rate or Variable Bit Rate
Maximum Streamed Resolution	1080p30
Video Scaling	Follow input (up to 1080p30)
GOP Size	15, 30, 60, 120, or 240 frames
Latency (encode only)	Not specified for encoder only •Latency is a function of encode latency, network, and decode latency •Total latency for most systems including the NMX-ENC encoder will be in the range of 1-3 seconds

AUDIO ENCODING	
Audio Codec	AAC-LC ADTS
Audio Channels (Max)	2
Bit Rates	64, 96, 128, 192 kb/s

Frequency Response	Any Input to Streaming Output:
	    64 kbit/s: 20 Hz to 11 kHz +/- 3 dB
	    96 kbit/s: 20 Hz to 14 kHz +/- 3 dB
	    128 kbit/s: 20 Hz to 17 kHz +/- 3 dB
	    192 kbit/s: 20 Hz to 20 kHz +/- 1 dB
	Multi-Format Input to Video Pass Thru:
	    20 kHz +/- 0.1 dB
	Analog Input to Analog Output:
	    20 kHz +/- 0.1 dB
	Analog Input to HDMI Output:
	    20 kHz +/- 0.1 dB

STREAMING	
Output Formats	UDP or RTP
Number of Simultaneous Unicasts	1 Note: unicast can only be enabled when multicast is disabled)
Number of Simultaneous Multicasts	1

	Note: multicast can only be enabled when unicast is disabled

| **ETHERNET**	
Connections	(4) RJ-45, Port 1 is designated as the uplink port
Description	10/100 BASE-T
Network Protocols	TCP, UDP, IGMP

CONTROL	
RS-232	(1) 3-pin 3.5 mm mini-Phoenix (male) connector Keypad port, used to control the encoder via a serial port*

INDICATOR RELAY	
Indicator Relay	(1) 4-pin 3.5 mm mini-Phoenix (male) connector (2) single-pole, single-throw relays Maximum Switching Voltage: 24 VDC or 28 VAC Maximum Switching Current: 1 A Indicator Relay 1 follows the streaming state of the encoder (closed = streaming) Indicator Relay 2 follows the recording state of the encoder (closed = recording) Most common usage is lighting a room indicator

USB	
Connections	(2) USB 2.0 Type A Front USB used to retrieve IP settings Front and Rear USB used for recording*
+5 V Current Output (Max)	500 mA

*This feature will be available upon release of a future firmware update
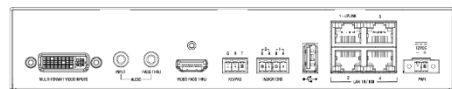
For a more detailed pictorial drawing please visit: http://www.amx.com/products/NMX-ENC.asp
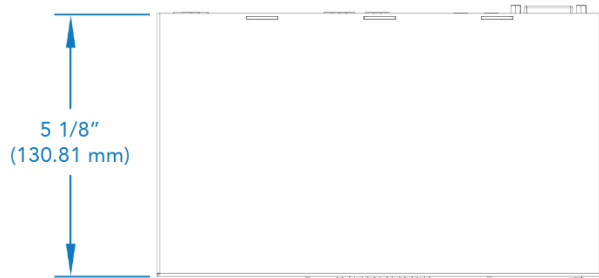
NMX-ENC
(Top View)

NMX-ENC
(Isometric Views)

5 1/8"
(130.81 mm)

8 3/4"
(221.64 mm)

1 5/8"
(42.16 mm)
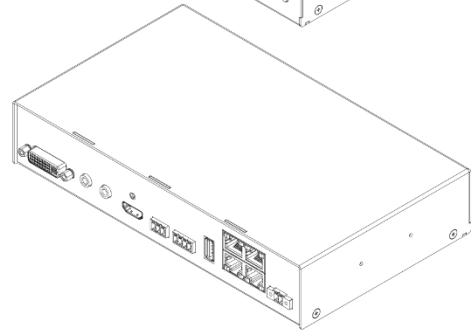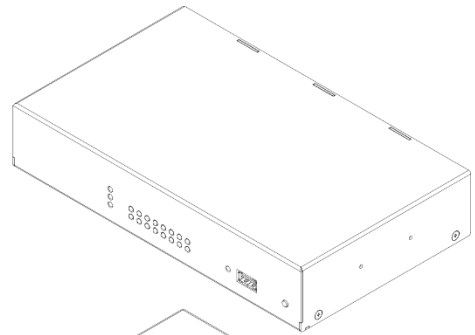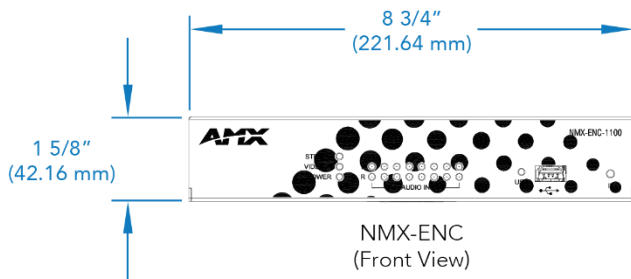
NMX-ENC
(Front View)

NMX-ENC
(Right View)

NMX-ENC-1100
(Back View)

NMX-NEC-1105
(Back View)