NVE-1-3G & NVD-1-3G

JPEG 2000 Encoder / Decoder

DATASHEET | IP ENCODING & DECODING

Features

- Highest quality video using JPEG 2000 lossless compression with ultra low latency (<50 ms)
- 3G HD-SDI/HD-SDI/SDI extension with NVE-1-3G encoder and NVD-1-3G decoder
- Converts DVI, VGA and HDMI with embedded audio (no HDCP) to 3G HD-SDI output, with NVE-1DVI encoder and NVD-1-3G decoder
- Mix both live streaming and recorded content on the same IP network
- Built-in KVM extension with USB 2.0 for HID (keyboard mouse control) for post-production
- Supports adjustable bit-rate
- Supports Forward Error Correction (FEC) SMPTE-2022-1 for improved video quality over Gigabit Ethernet networks for broadcast contribution applications
- Supports Full HD (SMPTE 424M, 292M and 259M compliant), 1080p/60Hz
- Functions as a full crosspoint matrix switch with multi-format video conversion
- Optional audio data module supports: Line-in/Line-out stereo audio, Mic-in/Mic-out audio, with synchronized audio and video, and RS-232
- Clean, simple and intuitive web-based interface for control with on screen display for video, audio and Ethernet status

Applications

- Broadcast Contribution Applications
- Broadcaster to Head-end links
- OB Van Contribution links
- Command and Control Centers
- KVM Extension over IP

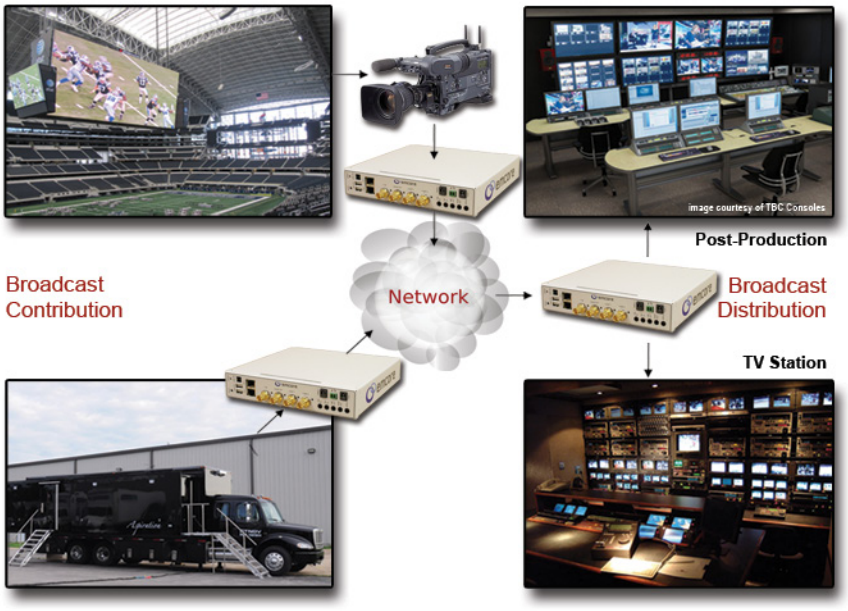
High-Definition JPEG 2000 over IP

EMCORE's NVE-1-3G and NVD-1-3G are professional grade encoder/decoders that simplify the transmission of 3G HD-SDI / HD-SDI / SDI with optional Line-in/Line out, Mic-in/Mic-out audio and RS-232 serial data over IP. Distributing video, audio and data over an IP network can eliminate the need for video matrix switches.

JPEG 2000 lossless compression technology allows the system to transmit the highest quality video and audio over an IP network with ultra low latency (<50 ms). Since there is no visible loss of quality, this makes the NVE/NVD-1-3G suitable for use in mission critical applications such as braoadcast television, event productions, command and control centers, and healthcare AV systems. KVM applications are also supported using the USB HID interface.

The NVE-1-3G encoder accepts an uncompressed 3G HD-SDI video signal, slightly compresses it, then transmits via a dedicated IP network. The NVD-1-3G decoder receives the IP stream, decompresses it and outputs the original video to be displayed on the HD monitor. In addition to 3G HD-SDI, it can also accept HDMI video with embedded audio when paired with the NVE-1DVI encoder, so long as the video content is not encrypted, as well as DVI / VGA.

Encoders and decoders are supplied as stand-alone modules. They can also be mounted in a 19" 1RU rack enclosure side-by-side. The devices can be configured via a web server, CLI interface or over Telnet. A simple software interface allows direct activation of the devices by any control software.



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NVE-1-3G & NVD-1-3G

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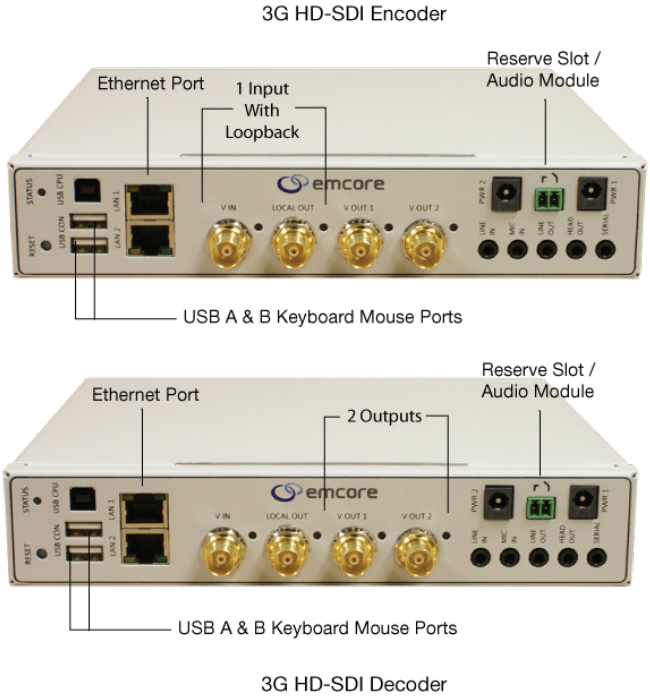
Ordering Information

Model	Description
NVE-1-3G	Encoder, JPEG 2000, 3G HD-SDI, HD, SMPTE 2022-1, 424M, 292M and 259M, Stand-alone
NVD-1-3G	Decoder, JPEG 2000, 3G HD-SDI, HD, SMPTE 2022-1, 424M, 292M and 259M, Stand-alone
NV-PS	12 VDC Power supply
NV-MAD	Optional module: Line-in/Line-out stereo audio, Mic-in/Mic-out audio and RS-232

General

Specifications	Values
Input Power	12 VDC +/- 10%
Power Consumption	13 Watts
Weight	6.2 lbs (2.8 kg)
Dimensions	19" plug-in with 2 units: 16" W x 9.8" D x 1.77" H (40.5cm x 25cm x 4.5cm)
Operating Temperature	-20 to 80° C

Connection Diagram



Network & Control

Specifications	Values
Network Interface	1x 10/100/1000 Base TX, RJ45
Remote Monitoring & Control	Internal web server/GUI, or CLI over USB console port, or SNMP v1, v2, v3

Data

Specifications	Values
Data	USB 2.0 (HID, keyboard and mouse)
Connector	USB type A (1), USB type B (1)

Compliance

Encoding & Decoding

Specifications	Values
Compression	JPEG 2000
Video Resolutions	480i, 576i, 720p, 1080i and 1080p
Latency	< 50 ms+ network latency
Bit Rate	20 to 800 Mbps
Frame Rate	24 Hz to 60 Hz
Pixel Clock	25 MHz to 150 Hz
Color Depth	12-Bit

Video

Specifications	Values
Video Inputs	3G HD-SDI, HD-SDI, SDI
Data Rate	270 Mbps, 1.485 and 2.97 Gbps
Standards	SMPTE 2022-1, 424M, 292M and 259M
Encoder Video interfaces	1 input with loopback
Decoder Video interfaces	2 outputs
Connector Type	BNC 75 ohm

Optional Audio Data Module

Specifications	Values
Line-In/Out Audio	Line-in: unbalanced audio 2 ch forward link Line-out: unbalanced audio 2 ch reverse link
Mic-In/Out Audio	Mic-in: unbalanced audio 2 ch forward link Mic-out: unbalanced audio 2 ch reverse link
LINE or MIC options	LINE or MIC can be selected using UI; either can be used for transport but not both
Compliance	SMPTE-2022-1 FEC
Frequency Range	20 Hz to 20 KHz (+/- 0.1dB)
Sampling Rate	192 KHz
Coding	24-bit uncompressed per channel
Impedance	LINE: 47k Ohm unbalanced MIC: 40k Ohm unbalanced
Gain	Variable range (+12dB ~ -34.5dB) Adjustments are shown using a slider-bar and are available as percentage increments from 0~99 within our UI
Output Levels	1Vrms (maximum)
Signal to Noise Ratio	>90dB
Total Harmonic Distortion	<0.1% @ 1KHz, 10mW
Digital Crosstalk	> 90dB@ 1KHz
Analog Crosstalk	> 80dB @ 1KHz
Input Connector	> 10Kohm (unbalanced, AC coupled)
Connector	3.5 mm stereo jack
Serial Data	Full duplex RS-232

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