Reliable Open Internet Based Solution

Point-to-Point and Point-to-Multipoint Zixi Based Solutions

PEG Encoder

PEG-NE-24-IP-CZ

+

Network Decoder

ND-24-IP

937-746-4556

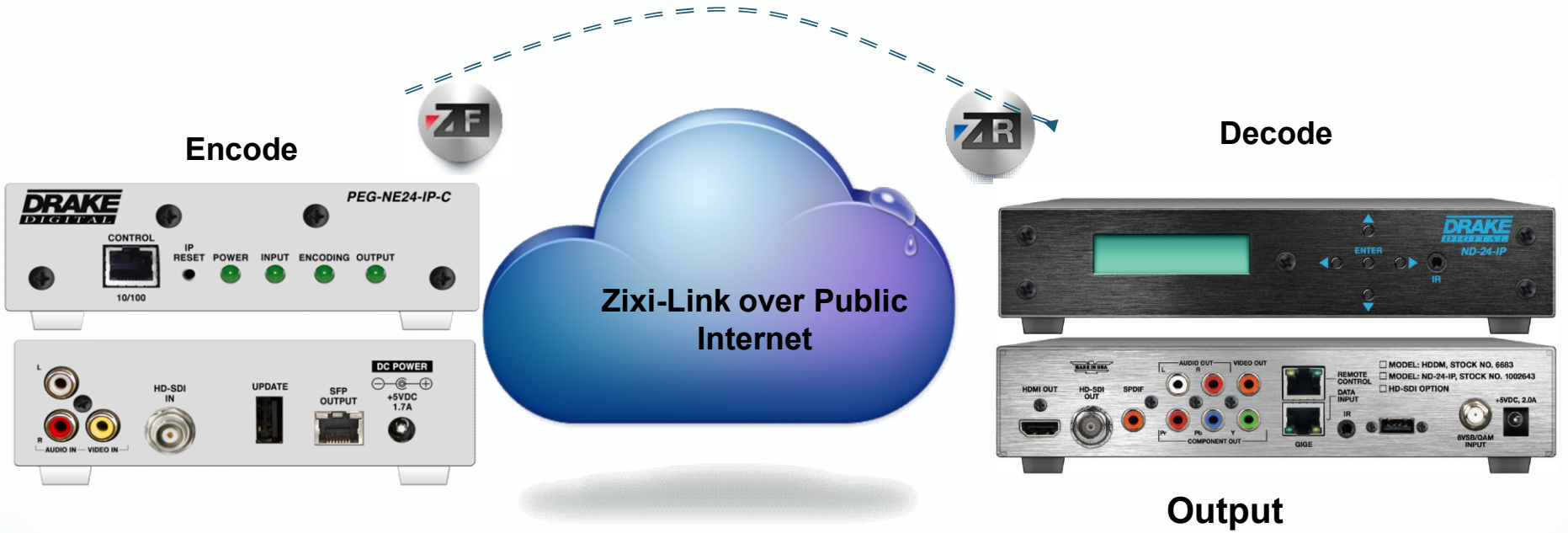
Overview

Drake/Zixi Point-to-Point and Point-to-Multipoint based "Broadcaster" solutions

The ***ND-24-IP*** decoder (with Zixi software) when paired with Drake's Zixi-enabled PEG encoder ***(PEG-NE-24-IP-CZ),*** creates a reliable transport solution leveraging the public internet. The Zixi software provides content-aware bandwidth optimization, error correction, and packet loss recovery.

The combination of Drake's encoding and decoding technology along with Zixi software, provides a reliable IP video transport from anywhere in the world over the open internet.

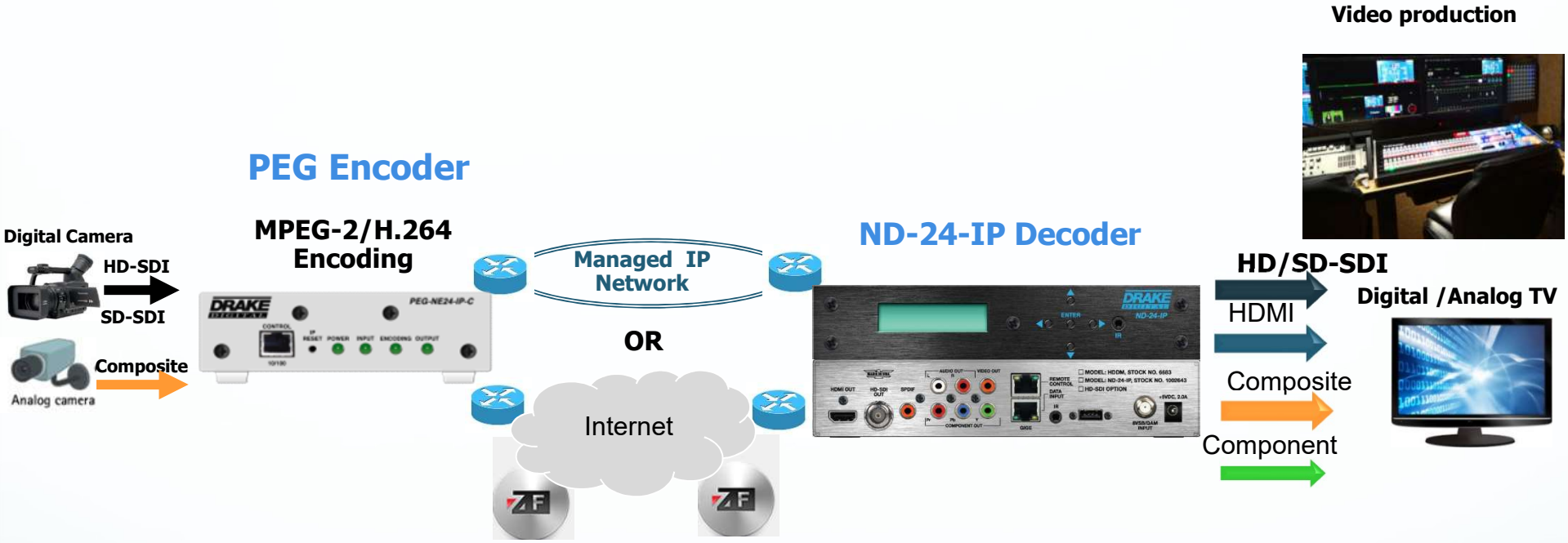
Point-to-Point Application



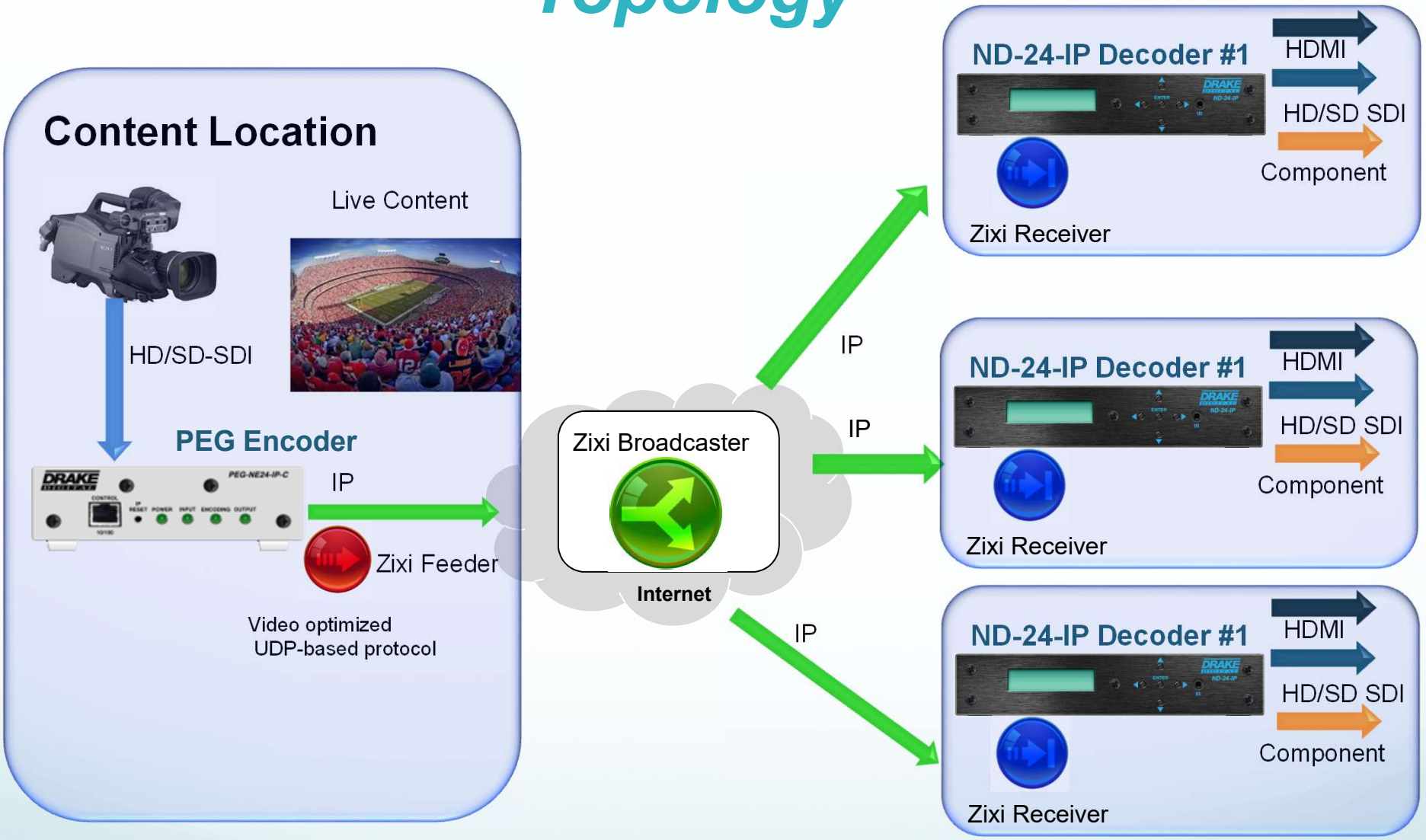
Input
HD-SDI
SD-SDI

Output
1xHDMI 1xHD-SDI 1xComponent

Point-to-Point Network Topology



Point-to-Multipoint Application Topology



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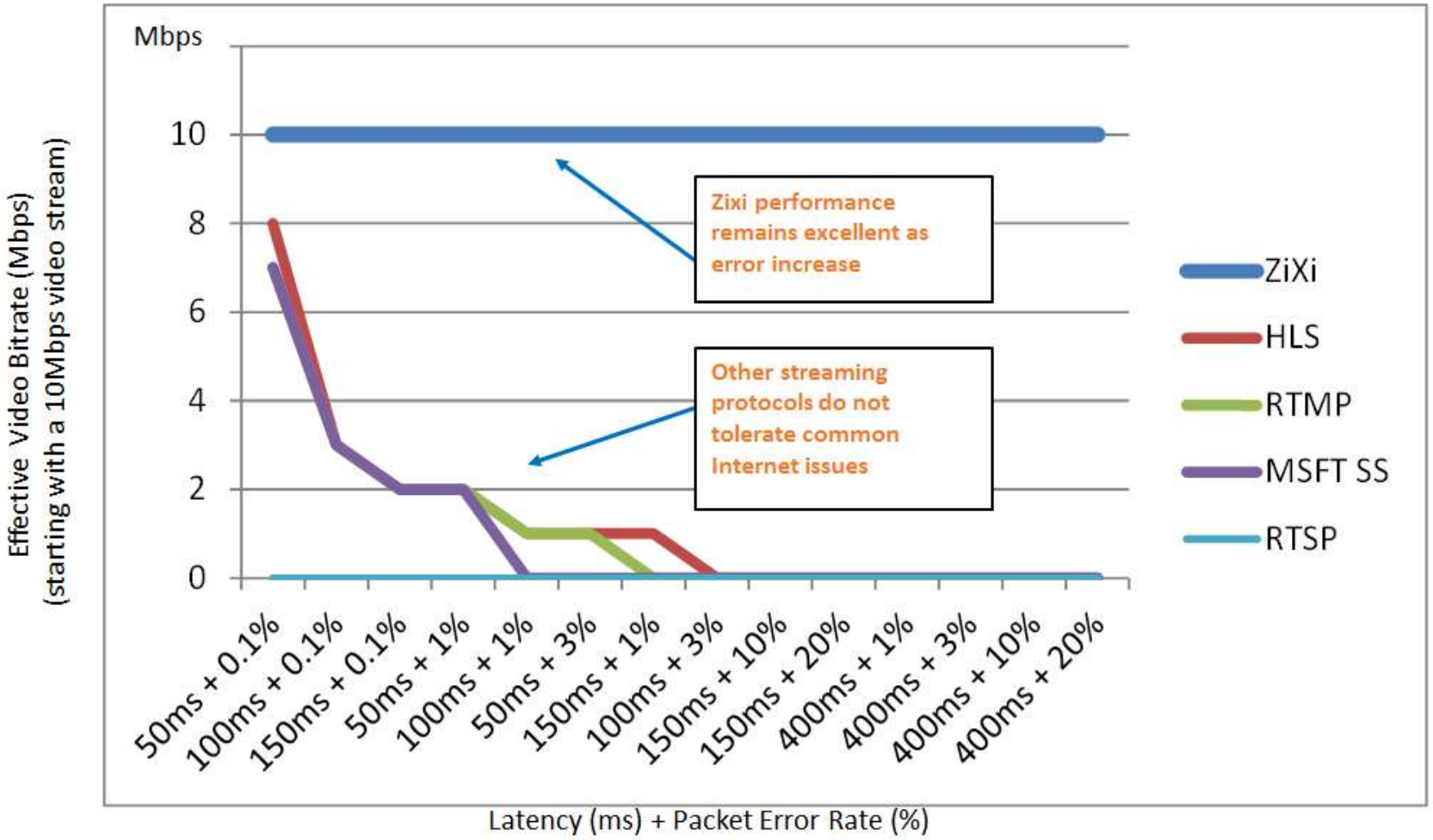
Zixi provides live broadcast quality video delivery over unmanaged networks



PEG Encoder Overview

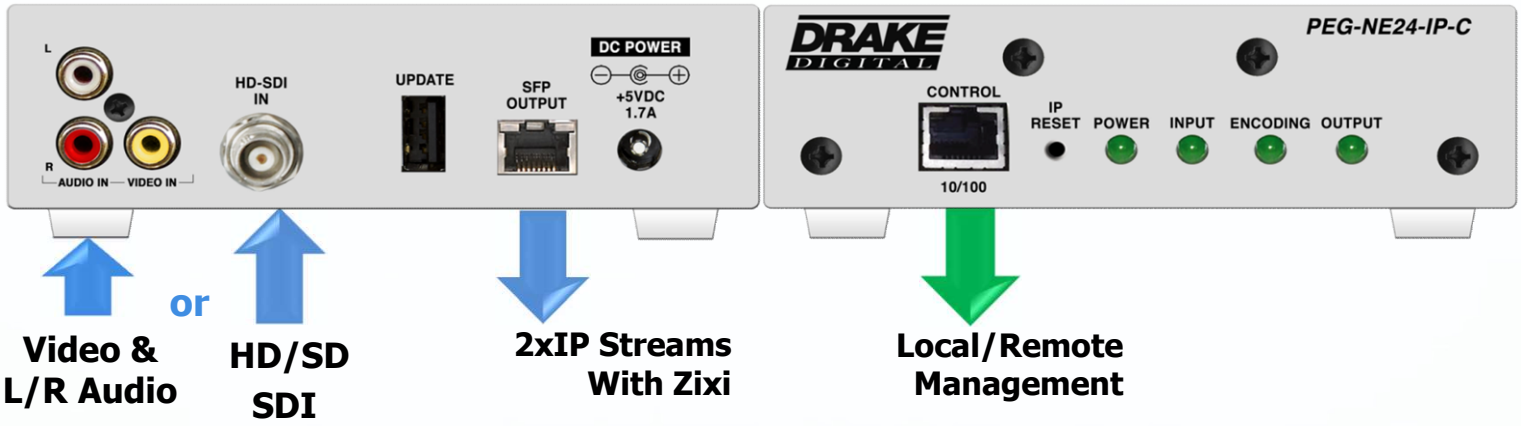
- A PEG (Public Education Government) channel carries local public access, school events, and municipal government programming.
- The PEG encoder is used to transport video and audio signals from a local origination site back to Service Provider Headend or hub location, so it can be multiplexed and broadcast throughout the Service Provider's franchise area.
- Programing content includes high school sports events, live coverage of town hall and school committee meetings, and local citizens content.

PEG Encoder with Zixi Output

The PEG encoder includes an Zixi output protocol that provides the ability ***Reliably*** stream content over an unmanaged network, including the public internet. The Zixi UDP based video-optimized protocol provides professional broadcasters, sports networks, and service providers to adapt to public internet using standard IP networks as a way to ingest and transport broadcast quality video.

PEG Encoder Model

Model: PEG-NE24-IP-CZ stock # 1002613Z



PEG Encoder 3 in 1 RU

PEG Encoder Video & Audio Specifications

- Video Encoding:
  - MPEG-2 & H.264 encoding
  - HD (720p & 1080i)
  - SD 480i
  - Output 2 x IP Streams (SPTS)
    - HD MPEG-2 + SD MPEG-2
    - HD H.264 + SD MPEG-2
    - HD H.264 + SD H.264
    - Optional Zixi output
  - Supports Frame or Field encoding
- Audio Encoding:
  - Dolby Digital AC-3
  - AAC (Advanced Audio Coding) stereo audio
  - MP2 (MPEG-1 Audio Layer 2) stereo audio

PEG Encoder Features

- Encodes a HD & SD stream of the same content in either MPEG-2 or H.264 formats
- Optional In-band management with VLAN support on SFP output
- Overlay static image (PNG image) over live video
  - Add channel icon to encoded video
  - Full screen image upon loss of video
- Configuration and shutdown control via HTTP server UI and programmable API
- AES encryption (Q3-2017)

PEG Encoder Benefits

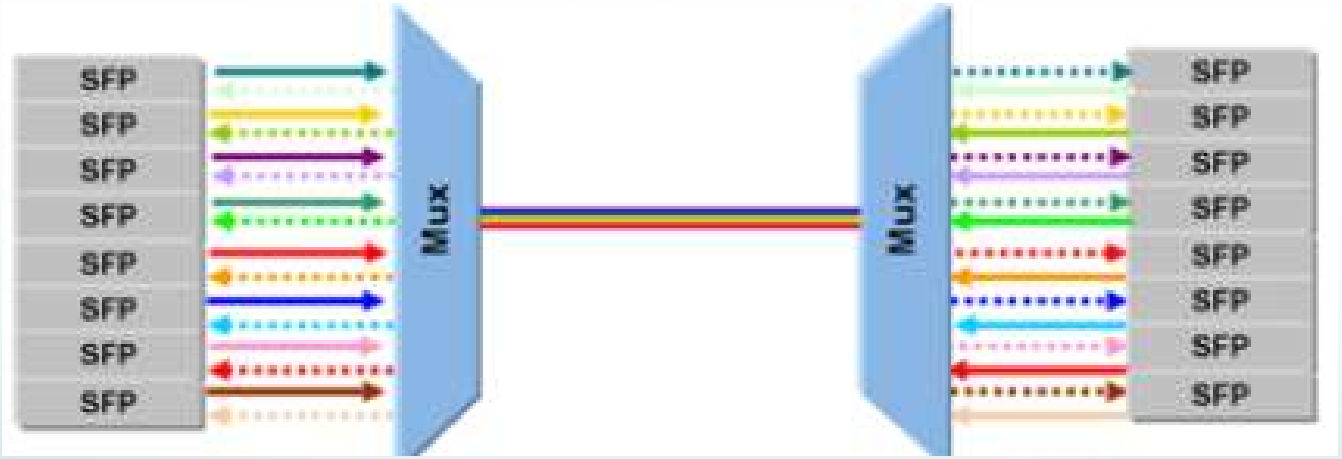
- Built-in watchdog timer with system reboot capability
- SNMP v2 support for Network Monitoring
- Easily integrated into 3rd party Management Systems
- IP Reset Button (default to factory IP Address)
- Displays encoder status messages in System Log
- Audio Dial Norm
- Front Panel Activity LEDs
- Field upgradable firmware

PEG Encoder Stream Settings

- Primary Stream settings
  - HD MPEG-2 bitrate settings 9 to 19 Mbps
  - HD H.264 bitrate settings 3.5 to 13 Mbps
  - SD MPEG-2 bitrate settings 2 to 8 Mbps
  - SD H.264 bitrate settings 1 to 4 Mbps
  - Selectable Audio bitrate of 128,192, & 384 kbps
- Secondary Stream settings
  - SD MPEG-2 bitrate settings 2 to 8 Mbps
  - SD H.264 bitrate settings 1 to 4 Mbps
  - Selectable Audio bitrate of 128,192, & 384 kbps

PEG Encoder
SFP Module Interface

- SFP Interface Module:
  - Copper
    - 10/100/1000 Base-T
    - Auto negotiation support
  - Optical
    - 850nm, 1310nm, and 1550nm
    - CWDM and DWDM



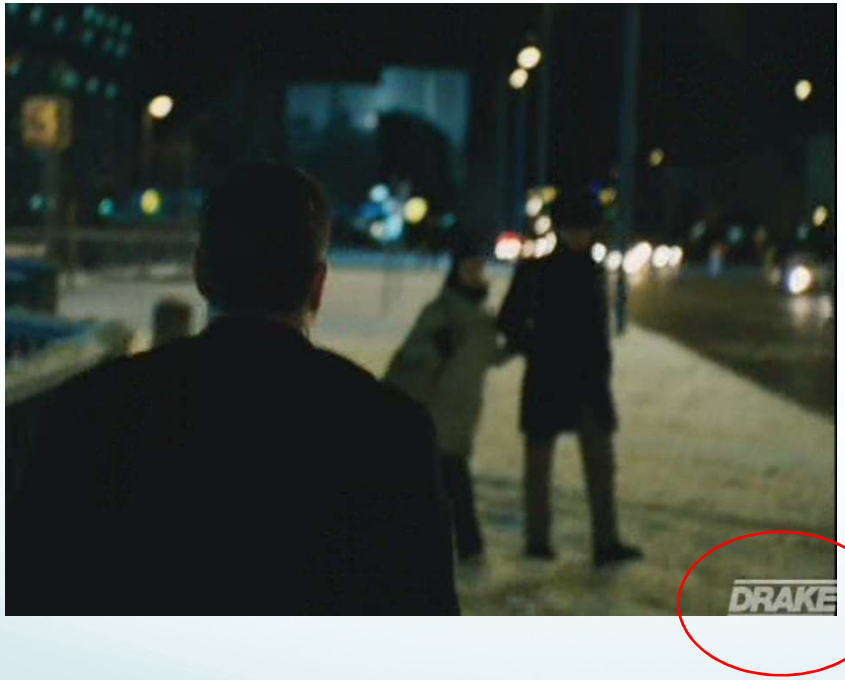
PEG Encoder
SFP Module Interface

Part number	Model	Description
1002620	SFP-C-10/100/1000 TRANSCEIVER	10/100/1000BASE-T SFP, RJ-45, 100M, COPPER
1002621	SFP-MM-850-550M	1000BASE-SX SFP, 850NM, 550M, MMF, DDM
1002622	SFP-SMF-1310-10KM	1000BASE-LX SFP, 1310NM, 10KM, SMF, DDM
1002623	SFP-SMF-1550-80KM	1000BASE-ZX SFP, 1550NM, 80KM, SMF, DDM
1002624	SFP-SMF-CWDM-1470NM-80KM	1.25GBASE-CWDM-SFP, 1470NM, 80KM, SMF, DDM
1002625	SFP-SMF-CWDM-1490NM 80KM	1.25GBASE-CWDM-SFP, 1490NM, 80KM, SMF, DDM
1002626	SFP-SMF-CWDM-1510NM-80KM	1.25GBASE-CWDM-SFP, 1510NM, 80KM, SMF, DDM
1002627	SFP-SMF-CWDM-1530NM-80KM	1.25GBASE-CWDM-SFP, 1530NM, 80KM, SMF, DDM
1002628	SFP-SMF-CWDM-1550NM-80KM	1.25GBASE-CWDM-SFP, 1550NM, 80KM, SMF, DDM
1002629	SFP-SMF-CWDM-1570NM-80KM	1.25GBASE-CWDM-SFP, 1570NM, 80KM, SMF, DDM
1002630	SFP-SMF-CWDM-1590NM-80KM	1.25GBASE-CWDM-SFP, 1590NM, 80KM, SMF, DDM
1002631	SFP-SMF-CWDM-1610NM-80KM	1.25GBASE-CWDM-SFP, 1610NM, 80KM, SMF, DDM
1002632-XX	SFP-SMF-DWDM-CHXX-40KM	1.25GBASE-DWDM-SFP, CH. 20-59 ,40KM, SMF, DDM
1002633-XX	SFP-SMF-DWDM-CHXX-80KM	1.25GBASE-DWDM-SFP, CH. 20-59, 80KM, SMF, DDM
Last 2 numbers indicate channel number (20-59).		

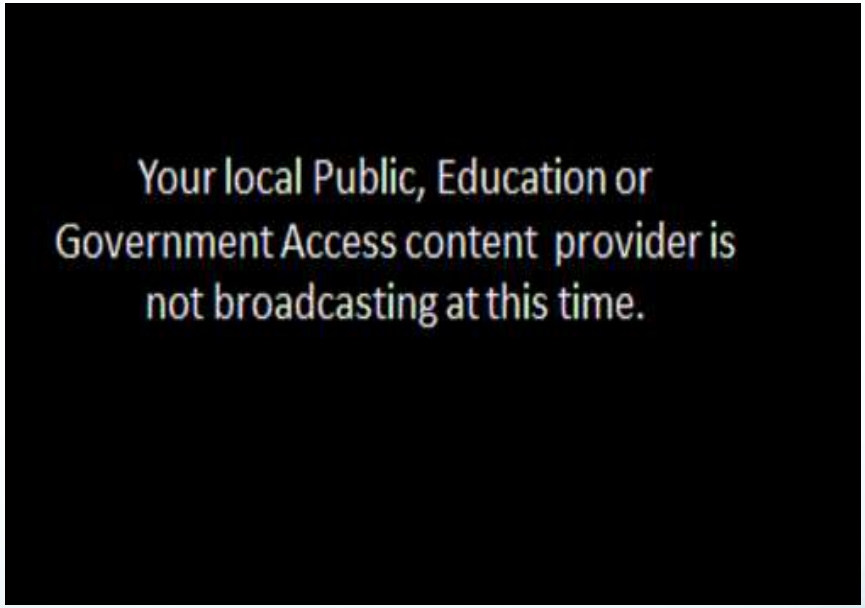
PEG Encoder Composting

- Overlay static image (PNG image) over live video

Add channel icon to the encoder video stream

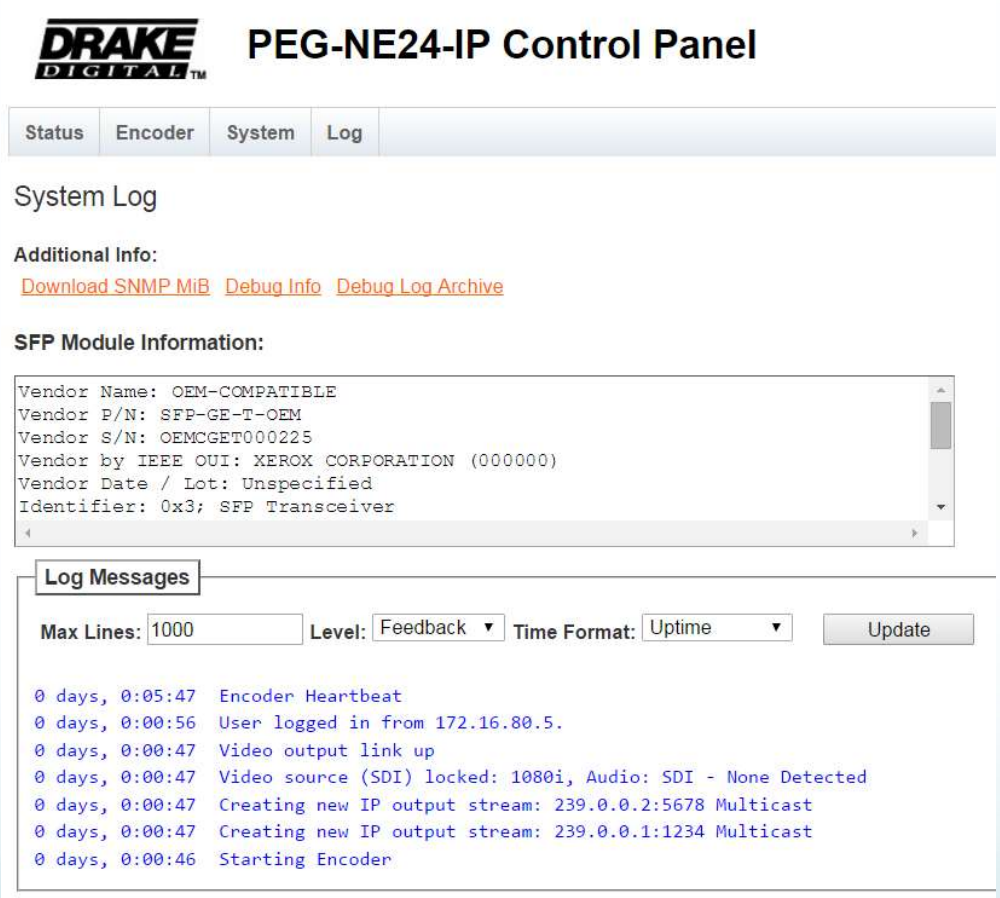


Full screen image upon loss of Video from PEG Provider



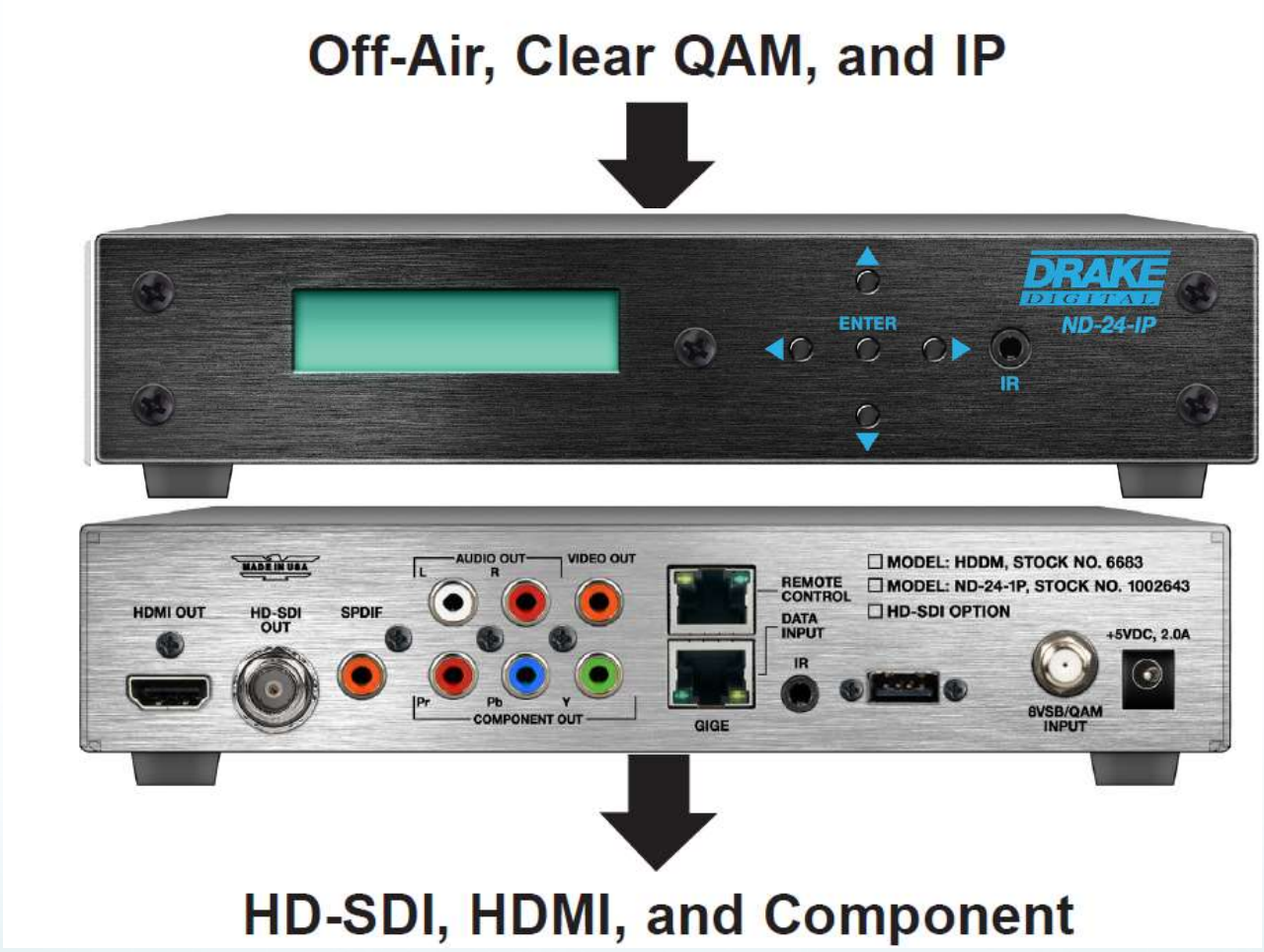
PEG Encoder System Log

- SFP module Information
- Encoder Log messages



ND-24-IP
Network Decoder

ND-24-IP Network Decoder



ND-24-IP Network Decoder

The ***ND-24-IP*** is ideal for broadcast and professional video applications where the demand is to decode a high quality live video signal from a wide variety of input sources. The ***ND-24-IP*** is a low cost professional video decoder that can decode an IP transport stream, off-air digital 8VSB channel or a program from a clear QAM source.

The network decoder accepts content in either MPEG-2 or H.264 video formats and outputs simultaneously HD/SD-SDI, HDMI, component, and composite video interfaces with embedded audio or separate analog audio. The network decoder delivers HD digital video supporting 3G-SDI and HDMI interfaces with HD video standards up to 1080p60.

ND-24-IP Network Decoder

The ***ND-24-IP*** provides a front-panel display and a web-based GUI via a dedicated RJ-45 control port for easy setup and remote management.

The ***ND-24-IP*** is a compact design that allows for two ***ND-24-IP*** decoders in a single rack unit. It can be used as a stand-alone high quality decoder or used in conjunction with IP encoders to provide an end-to-end IP video delivery solution.

ND-24-IP Network Decoder

- Off-Air, Clear QAM, and IP decoding
- Supports simultaneous video outputs
- Supports MPEG-2 and H.264 content
- Supports Closed captioning
- Accepts VBR (Variable Bit Rate) and CBR (Constant Bit Rate) video streams
- Unicast or Multicast
- Separate web-based management port for local and remote control
- Front-panel display with on-screen menus for easy setup
- AES decryption (Q3-2017)

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ND-24-IP Network Decoder

- High quality point to point HD-SDI or SD-SDI transport over managed or unmanaged IP networks for service providers or content producers
- Ideal for education environments, where the end user can select content from their internal IP or RF clear QAM network
- Command and control centers to back haul live camera feeds
- Broadcast monitoring applications to view locally or remote video production including live events
- Transport live video content for corporate meetings or events
- House of worship applications to extend your audience to multiple ministry locations

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ND-24-IP Network Decoder
Input/output

- Inputs: Clear QAM, 8VSB, and IP
  - (UDP/IP or RTP/IP)
  - Zixi input (Accept Mode)
  - Multicast/Unicast
  - TS Bit Rates: MPEG-2/H.264 (3 to 20 Mbps)
  - Zixi Pull Mode (Q3-2017)
    - Able to pull stream from a Zixi Broadcaster
- Outputs: HD/SD-SDI, HDMI, Component, Composite
  - supports 608 and 708 closed captioning
  - Low latency

ND-24-IP Network Decoder
Video and Audio decoding

- Video Format
  - MPEG-2 and H.264/MPEG-4/AVC
  - MPEG-2 HP@HL, MP@HL, MP@ML
  - MPEG-4/AVC HP@L4, MP@L3
- Video Output
  - 480i (640x480/720x480@30FPS)
  - 720P (1280x720@60FPS)
  - 1080i (1920x1080 @30FPS)
  - 1080P (1920x1080 @60FPS)
- Audio Output
  - Dolby Digital
  - Dolby Digital 5.1 or AC-3
  - MPEG-1 Layer II
  - AAC-LC (MPEG-4)
  - HE-AAC (MPEG-4)
  - Optical audio out
  - Unbalanced Stereo Analog Audio
  - HDMI Embedded Digital Stereo Audio

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