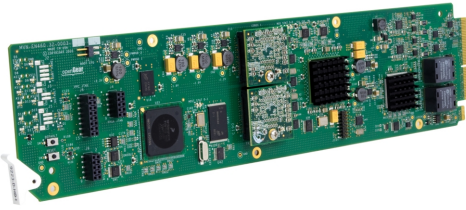


9990-ENC-H264-IP • HD/SD-SDI/CVBS (Single-Channel) H.264 Encoder with Streaming IP Output with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP



The **9990-ENC-H264-IP HD/SD-SDI/CVBS H.264 Encoder with Streaming IP Output** provides a card-based solution for distribution of MPEG-4 encoding. The encoder is **designed specifically for distribution**, with cost savings of offering only streaming IP instead of IP and DVB-ASI which is not needed for distribution. The 9990-ENC-H264-IP is perfectly suited for IP video distribution over the Internet or over a dedicated IP link. Utilizing the openGear® open-architecture platform, the 9990-ENC-H264-IP offers easy-to-use DashBoard™ setup and control operator interface. Up to 10 of the cards can be installed in a 20-slot frame, using less than 150W total, for reduced operating expenses. In addition to HD/SD-SDI inputs, the 9990-ENC-H264-IP provides the flexibility of supporting SD analog composite video and an analog audio stereo pair per input channel.

The 9990-ENC-H264-IP offers the latest advances in video compression that delivers excellent video quality at very low bit rates. Unique encoding designs allow delivery of multiple HD and SD video services simultaneously. The

9990-ENC-H264-IP provides two Ethernet outputs, supporting full-duplex 100 Mb/s and 1 Gb/s operation. Input video auto-detect mode allows encoding to automatically configure an output that correspond to the input, with resolution and frame rate same as input, and scaling set to same as input or other applicable choices. SMPTE-2038 processing allows inserting generic ancillary data packets in the transport stream, with frame accuracy. Up to four DID/SDID pairs can be supported.

Using HTTP Live Streaming, the 9990-ENC-H264-IP can transmit broadcast-quality video to mobile phones (Apple and Android 4.0 supported) and tablets.

Full user remote monitor/control allows full card status and control access across a standard Ethernet network. Status monitoring is also available at card edge.

FEATURES

Card-based design allows scalability, from 1 channel to 20 channels per frame

Input video auto-detect mode automatically configures output to correspond to input frame rate and scaling or convert formats using built-in UDX scaler

Low power/high-density design

Built-in video/audio ADC and embedder allows direct use with SD composite video and audio analog sources

Full support of CEA-608 and CEA-708 closed captioning. Closed-captioning filtering allows filtering to allow and use only SMPTE-334M and/or CEA-708 closed captioning.

Support for inserting generic ancillary data packets in the transport stream using SMPTE-2038, with frame accuracy. Up to four DID/SDID pairs can be supported.

SCTE 104 to SCTE 35 conversion

RTMP support for publishing to Adobe® Media Server, availing SDI content to Internet viewers. Streams to CDNs, Akamai, Ustream, YouTube, Wowza Cloud service and many others

HTTP Live Streaming protocol allows viewing by Apple® and Android™ 3.0 (or higher) devices

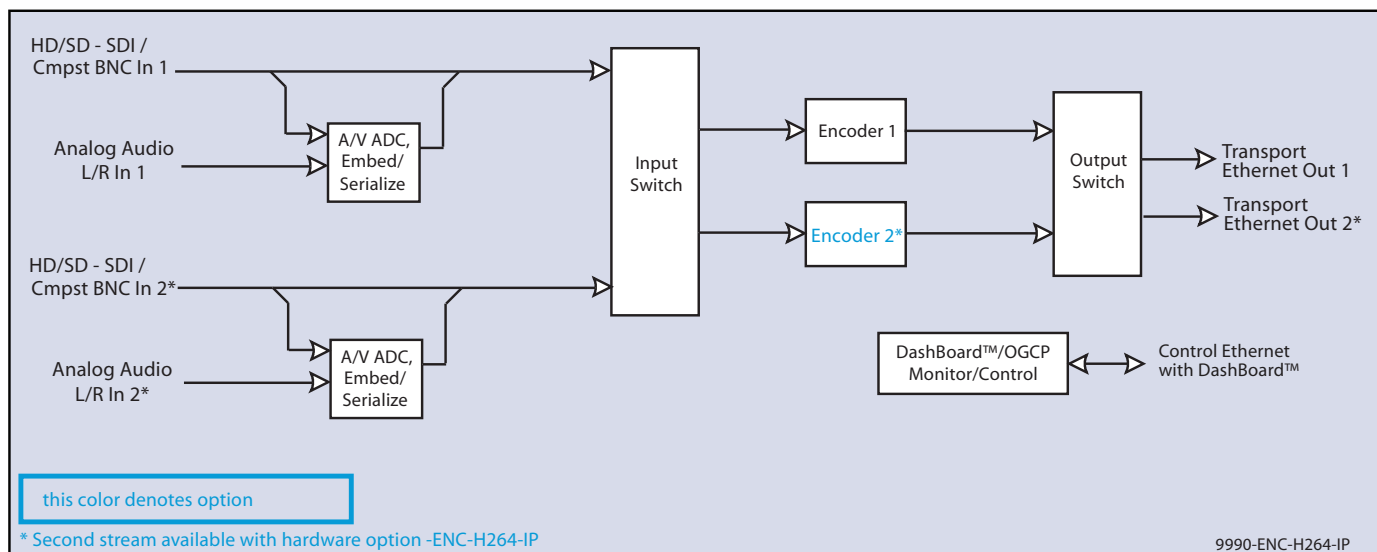
Remote control/monitoring via DashBoard™ software

Hot-swappable

Five year warranty

OPTIONS

Please see **Ordering Information** for descriptions and details.



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SPECIFICATIONS

Note: Inputs/outputs are a function in some cases of rear I/O module used.

Electrical

Power: 6 Watts

Processing Channels

(1) channel
(Second additional channel available with option -ENC-H264-IP)

HD/SD-SDI Input

(1) input/channel; each configurable as:
HD-SDI (SMPTE 292M)
SD-SDI (SMPTE 259M) with EDH
Composite analog video (PAL/NTSC)

Audio Inputs Supported

Embedded SDI (1 pair/channel)
Unbalanced or balanced stereo audio pair (see Ordering Information)

Video Encoding

MPEG-4 AVC High profile at level 4.2 (HP@L4.2)
MPEG-4 AVC High profile at level 4.0 (HP@L4.0)
CBR & VBR
2Mbps to 12Mbps (configurable)
SD Video:
MPEG-4 AVC Main profile at level 3.0 (MP@L3.0)
CBR & VBR
1.5Mbps to 10 Mbps (configurable)

Audio Encoding

MPEG-4 AAC-LC
Lip sync adjustment

Video Resolution Supported

HD: 1920 x 1080p 60/50/30/29.97/25
1080 x 1920/1440i 30/29.97/25
1280 x 720/960/640p 59.94/50/30/29.97/25
SD: 576 x 720/528i 29.97fps
576 x 720/528i 25fps

Video Pre-Processing

Closed Captions CEA 608B and CEA-708C
WSS/AFD

Management and Control

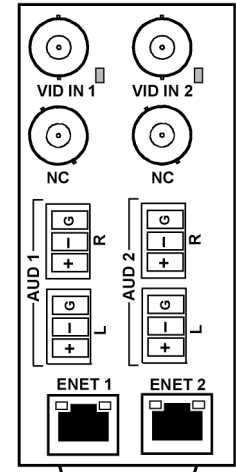
10/100Base-T Ethernet
Configuration Import/Export
Audible/visual fault warning
In-band and out-of-band control
SNMP v1, v2
Datasafe automated card configuration
Accurate bit rate control
Startup to streaming in seconds

Ethernet Outputs

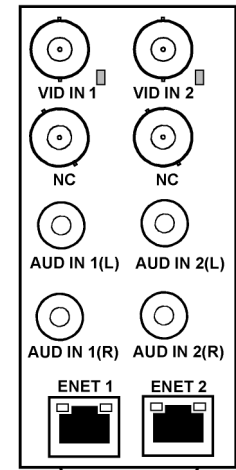
Number of outputs: (2) 100/1000Base-T RJ-45 ports, auto-negotiate or fixed speed
IPv4, IPv6, UDP

Regulatory Compliance

CE: CE marked in accordance with 93/68/EEC (22/07/03) Directive
UL: UL approval
US FCC: Part 15
EMC: EN55022, EN55024, EN6100-3-2



RM20-9990-ENC-B



RM20-9990-ENC-U

9990-ENC-H264-IP • HD/SD-SDI/CVBS (Single-Channel) H.264 Encoder with Streaming IP Output with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP

ORDERING INFORMATION

9990-ENC-H264-IP HD/SD-SDI/CVBS (Single Channel) H.264 Encoder with Streaming IP Output with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP

RM20-9990-ENC-B 20-slot Frame Rear I/O Module (Standard Width), (2) 3G/HD/SD-SDI/SD BNC Composite In, (4) Balanced Analog Audio In, (2) 100/1000Base-T RJ-45 Ethernet

RM20-9990-ENC-U 20-slot Frame Rear I/O Module (Standard Width), (2) 3G/HD/SD-SDI/SD BNC Composite In, (4) RCA Unbalanced Analog Audio In, (2) 100/1000Base-T RJ-45 Ethernet

Note:

- Options denoted as "+" are software-based options which are available on new product when ordered or can be customer field-installed as a software upload upgrade.
- Options or ordering line items denoted as "-" are hardware-based options/items. These options are available as factory-installed only on new product, or product returned to Cobalt for factory installation.

Options (Hardware-Based)

-ENC-H264-IP Add Encoder Second Channel Option (hardware factory-installed option applicable for single-channel card 9990-ENC-H264-IP)

Options (Software-Based)

+IP-T0-BROADCAST-OG Upgrade a 9990-ENC-H264-IP (single-channel model) to the 9223-S-HD-P (single-channel model) plus one +AAC license

+IP-T0-BROADCAST-Dual-OG Upgrade a dual-channel optioned card to the 9223-D-HD-P (dual-channel model) plus two +AAC licenses