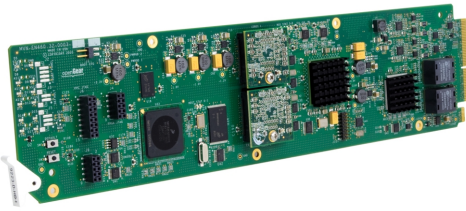


# 9990-ENC2-H264-IP HD/SD-SDI/CVBS (Dual-Channel) H.264 Encoder with Streaming IP Outputs with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP



The **9990-ENC2-H264-IP HD/SD-SDI/CVBS H.264 Encoder with Streaming IP Outputs** provide 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-ENC2-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-ENC2-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, offering distribution delivery of up to 20 individual or simulcast channels in a single frame, using less than 150W total, for reduced operating expenses. In addition to HD/SD-SDI inputs, the 9990-ENC2-H264-IP provides the flexibility of supporting SD analog composite video and an analog audio stereo pair per input channel.

The 9990-ENC2-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-ENC2-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-ENC2-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

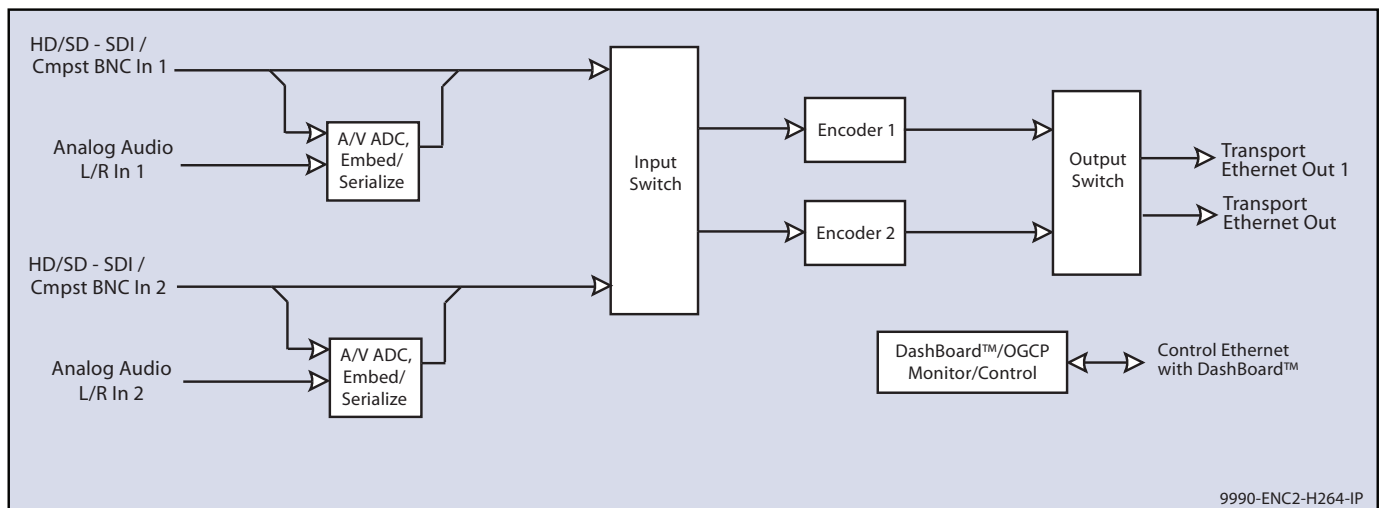
Remote control/monitoring via DashBoard™ software

Hot-swappable

Five year warranty

## OPTIONS

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



9990-ENC2-H264-IP



# 9990-ENC2-H264-IP HD/SD-SDI/CVBS (Dual-Channel) H.264 Encoder with Streaming IP Outputs with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP

## SPECIFICATIONS

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

### Electrical

Power: 6 Watts

### Processing Channels

(2) channels

### 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

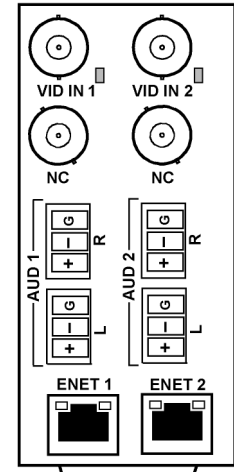
10/100Base-T Ethernet  
 Configuration Import/Export  
 Audible/visual fault warning  
 In-band and out-of-band control  
 SNMP v1, v2  
 Datasafe automated card configuration  
 Accurate bit rate control  
 Startup to streaming in seconds

### Ethernet Outputs

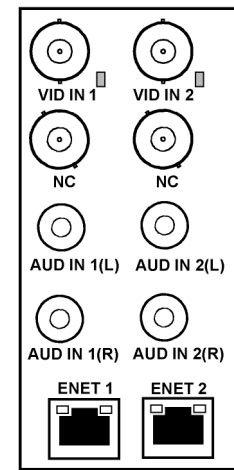
Number of outputs: (2) 100/1000Base-T RJ-45 ports, auto-negotiate or fixed speed  
 IPv4, IPv6, UDP

### 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-ENC2-H264-IP HD/SD-SDI/CVBS (Dual-Channel) H.264 Encoder with Streaming IP Outputs with Advanced Protocol Support including UDP Single/Multicast, HLS, and RTMP

### ORDERING INFORMATION

**9990-ENC2-H264-IP** HD/SD-SDI/CVBS (Dual-Channel) H.264 Encoder with Streaming IP Outputs 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 (Software-Based)

**+IP-TO-BROADCAST-Dual-P-OG** Upgrade a 9990-ENC2-H264-IP (dual-channel model) to the 9223-D-HD-P (dual-channel model) plus two +AAC licenses

**+IP-TO-BROADCAST-Dual-I-OG** Upgrade a 9990-ENC2-H264-IP (dual-channel model) to the 9223-D-HD-I (dual-channel model) plus two +AAC licenses