telairity
Real-Time HD

BE9400 Multiformat H.264 or AVS Encoder

The Telairity BE9400 is a scalable, fully programmable broadcast quality encoder for high definition and standard definition video formats. It combines Telairity's uniquely powerful hardware and software technology with leading-edge video compression (either H.264/AVC or AVS) to achieve industry-leading video quality at very low bit rates, below 1Mbps for SD and 6Mbps for HD formats. The versatile, multichannel BE9400 encoding platform can be configured with either 2 HD or SD channels, 1 HD plus 2 SD channels, or 4 SD channels, addressing the needs of IPTV and other providers to improve system density, or simultaneously encode a single input for up to 3 different types of displays (HD, SD, and Mobile formats).

Features and Options

Video Encoding Features

- 2 to 4 fully independent channels with SD I/O per channel pair (1 & 2, 3 & 4)
    - SD: Digital or Analog input with dual outputs (2 ASI, 2 IP, or 1 each)
    - HD: SDI input with dual ASI and dual IP outputs
- Codecs: H.264/AVC Profiles: High (HD), Main (SD), Baseline (mobile); AVS-P2
- Input Formats: HD:1080i,1080p, 720p; SD: 576i (PAL), 480i (NTSC)
- Output Horizontal Resolutions: HD: 1920, 1440, 1280, 960
    SD: 720, 640, 544, 480, 352, 240/288 (CIF)
- Rate Control – HD: 15 to 2 Mbps; SD: 5.0 to 0.1 Mbps
    - Constant Bit Rate (CBR), Variable Bit Rate (VBR)
- Scene change detection
- Entropy Coding: CABAC or CAVLC per AVC or AVS profiles
- Adjustable Spatial Preprocessing and Deblocking (Loop) Filters

Audio Encoding Features (per channel)

- SDI embedded audio input – per SMPTE 299M for HD, 272M for SD
    - Four programs (stereo pairs) per channel: Stereo, Dual Mono, Mono
- MPEG-1 Layer 2 encoding, bit rates: 32 to 384 Kbps
    - MPEG-4 AAC-LC option for better quality at lower bit rates
- Dolby Digital (AC-3) pass-through

Control Features

- On-board Flash memory for fast program upload at boot
- Web browser control via Ethernet interface

Output (maximum of 2 per SD channel, 4 per HD channel)

- MPEG-2 transport stream over DVB-ASI 75 ohm coax (1 or 2/channel)
- IP transport stream with TOS over 10/100 Base-T Ethernet (1 or 2/channel)

BE9400 Multiformat
SD/HD AVC/AVS Encoder

Applications

The Telairity BE9400 multichannel HD/SD encoder platform offers state of the art AVC or AVS video compression for all television formats, HD to mobile, in a cost-effective, 1 RU form factor. It excels at low bit rates, and is targeted to IPTV, ITV, mobile and other applications where low bit rates are needed and multiple channels must be accommodated, or flexible display encoding abilities are needed for HD-SD-Mobile formats.

Benefits

Handles multiple independent HD/SD channels, with up to 4 stereo audio programs per video channel

Based on the fully programmable Telairity-1 video architecture; full software upgradeability for easy maintenance and improvements.

MPEG-4 AAC-LC option for high audio quality at very low compressed bit rates; Dolby Digital (AC-3) pass-through also supported

"Instant on" two-second startup and one-second restart times

Non-stop design includes dual redundant power supplies. Price includes Telairity unconditional one year service guarantee

Models

BE9400-2SD 2 SD channels
BE8400-2HD 2 HD channels
BE9400-1HD2SD 1 HD + 2 SD channels
BE9400-4SD 4 SD channels

Single channel units available in 1U x 19" x 18" with front panel control:
BE9110 – 1 SD channel
BE8110 – 1 HD channel
BE8500 – 1 HD/SD channel

Ordering Information

Part Numbers:

BE9400-2SD -2HD -1HD2SD -4SD

Contents

- BE9000-series Encoding Platform

- Power Cable: IEC to USA plug; optional Euro plug

- USB flash drive with backup copy of encoder firmware and manual

Requirements

- Web browser control system

- SDI input source video
  - SD SMPTE 259M
  - HD SMPTE 292M

- Input cables
  - 75 Ohm coaxial with BNC connector
  - Composite or component (SD)

- Output cables (either or both)
  - 75 Ohm coaxial with BNC connector
  - Cat5/6 Ethernet with RJ-45 connector

About Telairity

Telairity, based in Santa Clara, California designs, manufactures and markets H.264/AVC and other advanced encoding and transcoding solutions for broadcast and professional video applications. Telairity's breakthrough video architecture (Telairity-1™) is the powerful foundation for its real time encoding products which provide outstanding video quality and state-of-the-art, video compression to achieve the lowest possible bit rates.

Telairity

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Video Inputs (maximum of 1 per channel)

Input Format Options:	0, 1, 2 HD-SDI (SMPTE 292M) inputs
	0, 2, 4 SD-SDI (SMPTE 259M) inputs
	0, 2, 4 Composite or Component (YPbPr) analog inputs
Video Input Formats:	4:2:2 (YCbCr): 1080i, 1080p, 720p; 576i, 480i
Frame Rates:	60*, 59.94*, 50*, 30, 29.97, 25, 24, 23.98 fps (*720p only)
Video In:	Digital: 1 BNC/channel for 75 ohm coax (SD or HD)
	Analog: 3 BNC/channel with adaptors for RCA YPbPr (SD)
SDI Loop Out:	Matching output BNC per SDI input (only)

Audio Input

Input Format:	Embedded in SDI per SMPTE 272M (SD), 299M (HD)
	Dolby Digital (AC-3) pass-through
	External Audio: 2 digital AES + 2 analog L/R stereo pairs per channel (cables optional)

Compressed A/V Output

Output Interface:	Digital Video Broadcast – Asynchronous Serial Interface (DVB-ASI), 270Mbps, buffered non-inverting
	10/100 Base-T Ethernet for IP
Packet Format:	MPEG-2 188-byte Transport Stream (TS) packets in either TS/UDP/IP or TS/RTP/UDP/IP format with optional FEC
Compression Format:	H.264 Profiles: High-L4, Main-L3, Baseline; AVS-P2
Compressed Bitrates:	User programmable, CBR or VBR
	0.1 to 5.0 Mbps/channel SD; 2-15 Mbps/channel HD
ASI Stream Out:	Twist-lock BNC connectors (0, 1, 2 per channel)
IP Stream Out:	RJ-45 connectors (0, 1, 2 per channel)

Control

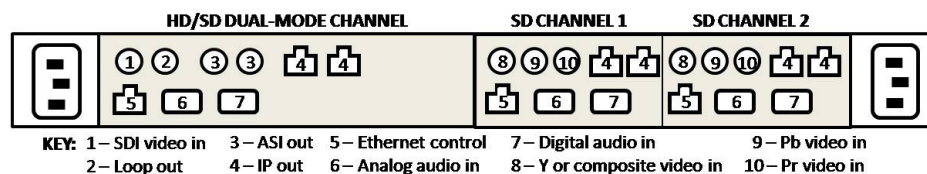|	
Interface:	1 Ethernet control interface per channel with RJ-45 connector via hub (or switch) to Web browser controller
Control Application:	Web browser Interface over Ethernet
SNMP:	Reporting Agent (option)

Power Specifications

Input voltage:	100 to 240 VAC (Auto sensing)
Line frequency, Power:	47 to 63 Hz; 390 Watts maximum

Mechanical Specifications

Dimensions & Weight:	1RU (H) x 19" (W) x 28" (D) rack mountable, 25 lbs.

Environmental Specifications

Cooling:	Forced air-cooling side to side
Operating Temperature:	-10° to 55°C

KEY: 1 – SDI video in 2 – Loop out 3 – ASI out 4 – IP out 5 – Ethernet control 6 – Analog audio in 7 – Digital audio in 8 – Y or composite video in 9 – Pb video in 10 – Pr video in

BE9400-Back Panel – I/O Configuration Option – Dual-redundant Power Supplies

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