telairity
Real-Time HD

BE9300 3-Channel Multi-format Encoder

The Telairity BE9300 is a scalable, fully programmable broadcast quality multiformat 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 BE9300 encoding platform provides 1 HD and 2 SD/mobile channels, addressing the needs of IPTV and other providers to simultaneously encode a single input for up to 3 different types of displays (HD, SD, and Mobile) in an economical and space-saving 1RU package.

Features and Options

Video Encoding Features

- 3 fully independent channels with SD I/O per channel pair
  - 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: 64 to 384 Kbps
  - MPEG-4 AAC-LC and –HEv2 for better quality or lower bit rates (to 12 Kbps)
- Dolby Digital (AC-3) and Dolby E 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 over 10/100 Base-T Ethernet (1 or 2/channel)

BE9300 Multi-format
HD/SD/PC/Mobile Encoder

Applications

The Telairity BE9300 multiformat 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 and Dolby-E pass-through supported

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

Non-stop design includes dual redundant power supplies.

Options

Breakout cables for external audio inputs (digital and analog);

Composite input (for SD+ channels)

Transcoding (MPEG-2, etc.)

G.703/E3 or DS3 output

Other Models

Common 1U x 19" x 28" form factor
BE9200 – 2 SD channels
BE9400 – 4 SD channels

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

120410

Ordering Information

Part Numbers:

BE9300

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 foundation for all its real time encoding products, which combine outstanding video quality with state-of-the-art, video compression based on the AVC (H.264 / MPEG-4.10) standard to achieve the lowest possible bitrates.

Telairity

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Video Inputs (maximum of 1 per channel)

Input Format Options:	1 HD-SDI (SMPTE 292M) input
	2 SD-SDI (SMPTE 259M) inputs
	0, 1, 2 Composite analog inputs
Video Input Formats:	4:2:2 for 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: 1 BNC/channel with adaptor for RCA (SD only)
SDI Loop Out:	Output BNC per SDI input (only)

Audio Input

Input Format:	Embedded in SDI per SMPTE 272M (SD), 299M (HD)
	Dolby Digital (AC-3) and Dolby E 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
Network Management:	Telairity NMS or standard SNMP

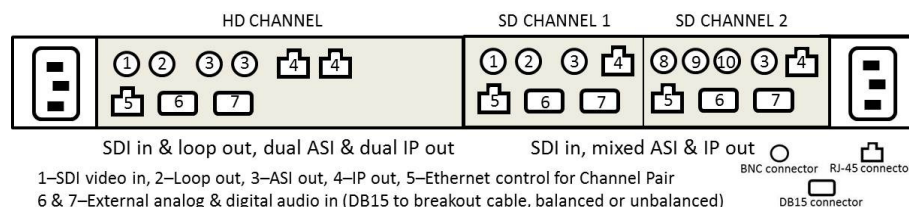## Power Specifications

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

HD CHANNEL   SD CHANNEL 1   SD CHANNEL 2

SDI in & loop out, dual ASI & dual IP out   SDI in, mixed ASI & IP out

BNC connector   RJ-45 connector

1–SDI video in, 2–Loop out, 3–ASI out, 4–IP out, 5–Ethernet control for Channel Pair
6 & 7–External analog & digital audio in (DB15 to breakout cable, balanced or unbalanced)

DB15 connector

BE9300-Back Panel – SD I/O Configuration Option – Dual-redundant Power Supplies

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