telairity

Real-Time HD

BE8500 Versatile HD/SD/Mobile Encoder

The Telairity BE8500 is a versatile video encoder, able to autosense either HD or SD input video formats, and automatically select a corresponding HD, SD, or Mobile encoding mode. It combines legacy MPEG-2 SD encoding ability with leading-edge compression technology (either H.264/AVC or AVS), support for both 2D and 3D formats, and the option of either 4:2:0 or 4:2:2 chroma sampling. Settable encode latencies range from 150ms to 2 seconds. Featuring "instant on" for immediate availability, simple "two button" front panel control for quick and easy field operation, wide temperature tolerance, dual redundant power supplies and external audio inputs (AES and analog stereo), the cost-effective and reliable BE8500 addresses the critical needs of broadcasters for a platform with the versatility to address any requirement.

Features and Options

H.264/AVC Video Encoding Features

Formats	HD		SD
Profile*	H.264 High @ L4; AVS-P2		H.264 Main @ L3; AVS-P2
Input Lines	1080i/p	720p	576i (PAL), 480i (NTSC)
Output Widths	1920 1440 1280	1280 960	720, 640, 544, 480, 352, CIF, etc.**
Mbps rates	2-15 (4:2:0), 2-25 (4:2:2)		0.1-5.0 (4:2:0), 1-15 (4:2:2)

*Baseline profile available for Mobile formats; **Mobile sizes available as requested

- Autodetection of HD/SD Input Format; Autoselection of Corresponding Output Format
- Rate Control: Constant Bit Rate (CBR) or Variable Bit Rate (VBR)
- Output Formats: 16:9 & 4:3
- Scene Change Detection; GOP Mode selection (fixed length or adaptive)
- Entropy Coding: CABAC or CAVLC per AVC, AVS, or MPEG-2 profile
- Adjustable Spatial Preprocessing and Deblocking (Loop) Filters

Audio Encoding Features

- HD / SD-SDI embedded audio input – per SMPTE 299M / 272M-2004
  - Four programs (stereo pairs): Stereo, Dual Mono, Mono
- MPEG-1 Layer 2 or MPEG-2/MPEG-4 AAC LC, HE-AAC, HE-AACv2 encoding
  - Selectable on a per-program basis
  - Bit rates: 384-64Kbps MP2, AAC LC; 128-16Kbps HE; 64-12Kbps HE v2
- 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, Encoder/Network Management Systems
- Rapid-reset Front Panel with "two-button" selection of 4 programmable profiles

Output

- 2 MPEG-2 transport streams over DVB – ASI
- 2 IP Transport streams over 10/100 Base-T Ethernet
- 1 MPEG-2 transport stream over G.703 E1/E3 – DS3 (option)

BE8500 Versatile
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Applications

The Telairity BE8500 Real time Encoder Platform offers state-of-the-art AVC or AVS video compression in a compact and cost effective 1 RU form factor. It is expressly designed to encompass the widest possible variety of HD, SD and mobile contribution and distribution encoding needs.

Benefits

Compact 1RU system for broadcast quality video encoding

Based on the fully programmable Telairity-1 video architecture, with easy inter-conversion between AVC and AVS codecs; uses a simple control monitor for improved responsiveness, reliability, stability (no Windows or other complex OS)

True real-time HD encode latency (adjustable 150ms to 2000ms)

State-of-the-art H.264/AVC encoding to compress HD signals below 6Mpbs, SD signals below 1Mbps

Automatic detection of input formats with auto-selection of corresponding HD, SD, or Mobile output formats

4:2:0 or 4:2:2 output chroma in H.264

Teletext, VBI, EBU and DVB subtitles; WSS and Closed Caption

"Instant on" five-second startup, two-second reset times

Very wide temperature tolerance: +55 to -10 degrees Celsius

Options

Breakout cables for external audio Inputs (digital & analog)
Composite input module for SD
Transcoder input module (ASI, SDI, IP)
G.703 – DS3 output module

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Ordering Information

Part Number: **BE8500**

Contents

- BE8000-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-2008
  - HD SMPTE 292M

- Input cable
  - 75 Ohm coaxial with BNC connector

- 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
3375 Scott Blvd., Suite 300
Santa Clara, CA 95054
tel 408 764 0270
fax 408 764 0271
www.telairity.com

Video Inputs

Formats:	High Definition or Standard Definition – Serial Digital Interface (HD-SDI SMPTE 292M; SD-SDI SMPTE 259M-2008)
Modes:	4:2:2 for HD (720p, 1080i, 1080p to 30fps) or SD (576i, 480i)
Frame Rates: *720p only	Frames per second in progressive mode: 23.98, 24, 25, 29.97, 30, 50*, 59.94*, 60* Fields per second in interlaced mode: 50, 59.94, 60
SDI Connectors:	1 BNC In, 1 BNC source Loop Out (for monitoring/redirection)
Optional Connectors:	Composite (2 BNC: In & SDI Out); Transcoding (1 BNC or IP)

Audio Inputs

Formats:	Embedded per SMPTE 299M (HD-SDI); 272M-2004 (SD-SDI) Dolby Digital / AC-3, or Dolby E pass-through External input: 4 AES + 4 analog channels (2 stereo pairs)

Compressed A/V Output

Interfaces:	2 Digital Video Broadcast – Asynchronous Serial Interfaces (DVB-ASI), 270Mbps, buffered non-inverting 2 10/100 Base-T Ethernet; 1 G.703 (E1/E3) – DS3
Connectors:	2 BNC (ASI), 2 RJ-45 (IP); 1 optional BNC (G.703 – DS3)

Formats & Bitrates:

	HD		SD	
	4:2:0	**4:2:2**	**4:2:0**	**4:2:2**
H.264/AVC	2-15Mbps	2-25Mbps	0.1-5Mbps	1-15Mbps
AVS*	2-15Mbps	NA	0.1-5Mbps	NA
MPEG-2	NA	NA	1-10Mbps	NA

*AVS is an alternative to H.264/AVC 4:2:0

Packet Structure:	MPEG-2 188 byte Transport Stream packets in either: TS/UDP/IP format TS/RTP/UDP/IP format with selectable pro MPEG FEC

Control

Control Application:	Web browser Interface over Ethernet; Telairity EMS/NMS
Direct Presets:	User-programmable front panel control
Status Monitoring:	Temperature, Power Supply operation, Input video errors
SNMP:	SNMPv1 v2 supported with Telairity MIB

Power Specifications (dual-redundant power supplies)

AC power:	100 to 240 VAC (Auto sensing); 47 to 63 Hz; 206W
DC power (option):	-48V (± 20%)

Mechanical Specifications

Dimensions & Weight:	1RU (H) x 19" (W) x 18" (D) rack mountable, 18 lbs.

Environmental Specifications

Cooling:	Forced air-cooling, front to rear
Temperature / Humidity:	-10° to 55° C operation / 20% to 95% non-condensing
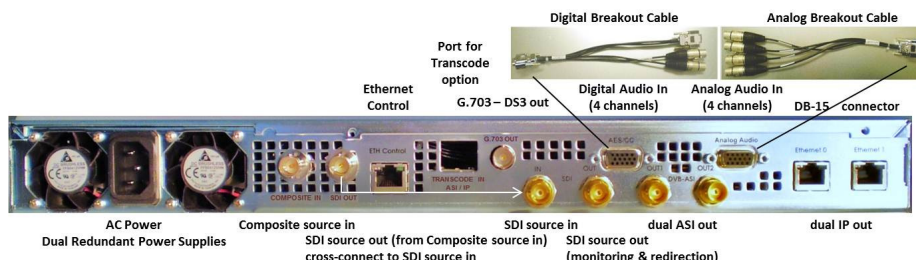
BE8500 back panel with composite in and G.703/E3 – DS3 out options

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