

## BE9200/9400 Multi-Channel SD+ Encoders

The Telairity 2-channel BE9200 and 4-channel BE9400 are scalable, fully programmable broadcast quality encoders for standard definition and mobile video formats. Telairity's uniquely powerful hardware and software technology generates leading-edge video compression (H.264/AVC, MPEG-2, or AVS) to achieve industry-leading video quality at very low bit rates for maximum transmission and storage efficiency. The 1RU BE9400 high density encoding platform also minimizes rack space to further reduce per-channel costs. The BE9400 can be readily upgraded via a software download to add new features or enhance performance.



### Features and Options

#### Video Encoding Features

- 4 fully independent channels with I/O configurable per channel pair (1 & 2, 3 & 4)
- ASI, SDI, or GigE input for pre-encoded content; separate SDI and optional Composite input for uncompressed content; uncompressed SDI loop-out for monitoring, redirection
- Transcoding Image Enhancement (Deringing, Deblocking, Flicker reduction, Deinterlacing)
- Input Formats: 576i (PAL), 480i (NTSC)
- Input Codecs: MPEG-2 Main Profile Main & High Levels • Others by request
- Two outputs per channel: choice of 2 ASI, 2 IP, or 1 ASI & 1 IP
- Output Codecs: H.264/AVC High, Main, Baseline Profiles; MPEG-2 Main profile; AVS-P2
- Supports all standard output resolutions, including: D1, 4CIF, VGA, HVGA, WQVGA, CIF, QVGA, HQVGA, QCIF, QQVGA (SQVGA), SQCIF, etc.
- Reduced frame rates: 10 / 15 / 20 fps (1/3, 1/2, 2/3 of 30fps)
  - Customizable frame sizes and frame rates available
- Rate Control – 5.0 to 0.1 Mbps; Constant or Variable Bit Rate (CBR, VBR)
- GOP mode: selectable fixed length or adaptive
- Enhanced scene change detection; CAVLC or CABAC entropy encoding
- Adjustable Spatial Preprocessing and Deblocking (Loop) Filters

#### Audio Encoding Features (per channel)

- SDI embedded audio input per SMPT 272M
  - 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 & -HEV2 for better quality or lower bit rates (to 12 kbps)
- Dolby Digital / AC-3 and Dolby E pass-through

#### Control Features

- Web browser control via Ethernet interface
- Telairity Encoder and Network Management System applications
- Simple integration with standard SNMP systems

## BE9400 MultiChannel SD/Mobile Encoder

### Applications

The Telairity BE9200 and BE9400 multichannel SD & Mobile encoding platforms offer state of the art video compression for all SD and mobile television formats in a cost-effective, 1 RU form factor. They excel at low bit rates, and are targeted to IPTV, ITV, mobile and other applications where the lowest bit rates are needed and multiple channels must be accommodated.

### Benefits

Space-saving compact 1RU design

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

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

Industry-leading video quality at ultra-low bitrates for SD and Mobile formats

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

"Instant on" startup and restart times

Non-stop design with dual redundant power supplies.

### Options

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

Composite input

Transcoding (MPEG-2, etc.)

G.703/E3 or DS3 output

**Orion DVB-S/S2, DSNG modulator**

### Other Models

**BE9110** Single channel with front panel control

**BE9300** 3 channel multi-format model (1 HD, 2 SD+)

## Ordering Information

Part Numbers:

**BE9200, BE9400**

## 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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## Network Compatibility

Inputs: Satellite, Cable, Terrestrial, IP; Digital or Analog  
 Outputs: Streaming over 2.5G, 3G, 4G Cellular; 3GPP MBMS; DVB-H Mobile; MediaFLO; ATSC M/H; DSL, WiFi, WiMax broadband

## Video Inputs

Input Format Options: 4 SD-SDI (SMPTE 259M) source inputs  
 4 Composite analog source inputs (option)  
 4 SDI, ASI or Gig-E transcoding inputs

Video Source Input Formats: 4:2:2 for 576i (PAL), 480i (NTSC)

Pre-encoded Input Formats: MPEG-4, MPEG-2, MPEG-1, VC-1, DivX, DV, JPEG

Frame Rates: 30, 29.97, 25, 24, 23.98 fps

Connectors: BNC for 75 ohm coax (SDI, ASI); Composite with RCA adaptor  
 RJ-45 for Cat5/6 (Ethernet)

## Audio Input

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

## 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 Formats: Profiles: H.264 – High, Main, Baseline; MPEG-2 – Main, AVS-P2

Compressed Bitrates: User programmable, CBR or VBR; 0.1 to 5.0 Mbps/channel

ASI Stream Out: Twist-lock BNC connectors (0, 1, 2 per channel)

IP Stream Out: RJ-45 connectors (0, 1, 2 per channel)

## System

Interface: 1 Ethernet control interface per channel pair with RJ-45 connector

Control Application: Web browser Interface over Ethernet

Network Management: Telairity EMS/NMS or standard SNMP

Input Voltage: 100 to 240 VAC (Auto sensing); -48VDC option  
 dual-redundant power supplies

Line Frequency, Power: 47 to 63 Hz; 390 Watts maximum (4 channels)

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

Cooling: Forced air-cooling side to side

Operating Environment: -10° to 55°C; 5-95% humidity (non-condensing)



**BE9400 Quad-Channel SD/Mobile Encoder Back Panel (1 ASI & 1 IP out/channel)**

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