



EN8100

MPEG-2 Standard Definition System Encoder

With over a billion MPEG-2 only consumer receivers deployed world-wide, MPEG-2 based digital video headends continue to be a critical part of the encoding landscape for terrestrial, telco, satellite and digital cable service providers. With the drive to launch new channels, especially new HD services, the need for new more efficient SD MPEG-2 has never been greater.

The EN8100 is simply the most efficient SD MPEG-2 encoder available. It delivers high quality SD video at bit-rates previously unachievable with the MPEG-2 standard. The radical design of the EN8100 is aimed specifically at the most demanding low bit-rate applications. Combined with its efficient use of rack space, the EN8100 is the ideal MPEG-2 real-time encoder for high performance DTH applications via satellite, digital terrestrial or cable.

PRODUCT OVERVIEW

Outstanding Innovation Delivers a 15% Gain in Coding Efficiency

Based on 18 years of encoder design experience, the EN8100 is a radical new design. The EN8100 pushes the boundaries of SD MPEG-2 to levels of efficiency only thought possible for MPEG-4 AVC. The EN8100's unique multi-point look ahead supports an RDO (Rate Distortion Optimization) engine that extracts the maximum efficiency possible from the MPEG-2 specification. This efficiency gain coupled with Reflex™ statistical multiplexing typically allows a saving of one frequency in five used for broadcast.

Interoperability

The tools and techniques used by the EN8100 are fully configurable to guarantee interoperability with all generations of deployed set-top box and iDTV.

Efficient Rack Space

For installations where rack space is at a premium, the EN8100 delivers the highest density of any broadcast quality MPEG-2 encoder. The EN8100 can support up to six channels of SD MPEG-2 encoding per chassis enabling a rolling upgrade of a headend with minimum spare rack space.

Hot Swap Support and Card level redundancy

The six SD MPEG-2 encoder cards are hot swappable allowing a failed encoder module to be replaced while the other five channels remain on air.

nCompass Control supports card level redundancy preventing disruption to other services during a redundancy switch.

Environmental

A 16 channel system based on the EN8100 consumes half the power of a system based on previous generations of encoders, halving the carbon footprint of your headend.

BASE UNIT FEATURES

EN8100 Encoder (EN8100/BAS/AC)

The encoder features a single SD MPEG-2 encoder as standard with five expansion slots for additional channels. These expansion slots facilitate several hardware options.

- Up to 6 channels per 1RU chassis
- Each SD MPEG-2 option card is hot swappable
- SD MPEG-2 encoders support;
 - SDI video inputs
 - Digital AES-EBU and embedded SDI audio input
 - MPEG-1 Layer II Audio
 - Dolby® Digital (AC-3) 1-5.1 channel pass-through
 - Triple pass fully exhaustive motion estimation
 - 44 pass compression (advanced RDO) for optimal efficiency
 - Support for a wide range of VBI data formats
 - Closed caption support input via line 21 or SDI SMPTE 334
 - Conversion of EIA 608 to EIA 708 format closed captions
 - Control via nCompass Control

EN8100 Encoder (EN8100/BAS/DUALAC)

- A dual PSU version of the EN8100 supporting up to four SD MPEG-2 encoders per chassis

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SOFTWARE OPTIONS**Performance Upgrade (EN8100/SWO/SDMP2/PU)**

- The performance upgrade enables the unique RDO features that deliver 15% greater efficiency

Clarus™ Noise Reduction (EN8100/SWO/SDMP2/NR)

- Four levels of professional-grade adaptive noise reduction to address the most demanding noisy video sources

Reflex (EN8100/SWO/SDMP2/REFLEX)

- Enables Reflex statistical multiplexing allowing the encoder to be part of a stat-mux pool of encoders that share their bit-rate using a MX8400 multiplexer
- Reflex statistical multiplexing coupled with the EN8100's unique multi-point look-ahead encoders can deliver over 25% efficiency gain for a typical 12 channel system
- One license required per encoder module

Dolby® Digital Stereo Encoding**(EN8100/SWO/DOLBY/AC3)**

- Enables one pair of Dolby® Digital (AC-3) stereo audio encoding
- Up to two pairs per encoder module can be supported

Audetel Audio Description Service**(EN8100/SWO/AUDETTEL)**

- Allows the processing of one Audetel audio description service per channel
- One license required per encoder module

HARDWARE OPTIONS

Please contact TANDBERG Television or an approved reseller to confirm which combinations of options are supported.

SD MPEG-2 encoder card (EN8100/HWO/SDMP2)

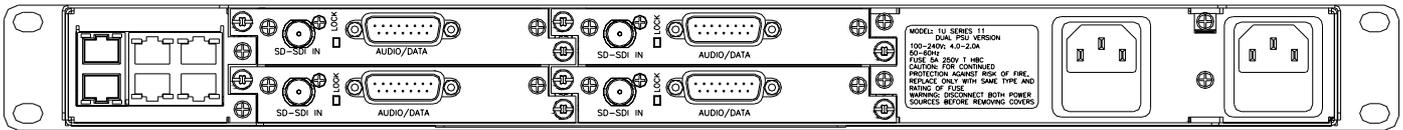
- Hot Swap SD MPEG-2 encoder module
- 1 encoder module is fitted as standard
- Up to 6 encoders may be installed per chassis with single PSU
- Up to 4 encoders may be installed per chassis with dual PSU

External Sync Input Card (EN8100/HWO/EXTSYNC)

- Hot Swap Sync input option card
- Supports an H-Sync or 10MHz reference input to support single PCR applications

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SAMPLE CONFIGURATION



Dual PSU with four SD MPEG-2 Encoders

SPECIFICATIONS

SD MPEG-2 Video and Audio Encoder Option Card

1 to 6 SD MPEG-2 encoder option modules
Full support for module level Hot-Swap

SD MPEG-2 Option Card Inputs

Video

SDI serial digital video 625 and 525 line standard supported with EDH error detection and health monitoring
HSYNC support for 625 and 525 line (option)

Audio

Two stereo pairs input via AES-EBU or embedded on SDI
Supports both balanced (AES3) and unbalanced (AES3id) digital audio inputs

Video Encoder

MPEG-2 MP@ML Encoding
0.256 to 15 Mbps
Performance upgrade enables RDO encoding for 15% efficiency gain at typical DTH bit-rates (option)
Triple Pass "Pixel Perfect" fully exhaustive motion estimation
TANDBERG Reflex statistical multiplexing support (option)
Vertical Resolutions 576, 288 (PAL), 480, 240 (NTSC)
Horizontal Resolutions 720, 704, 640, 544, 528, 480, 352
GOP processing includes adaptive GOP structure and adaptive GOP length
Fully configurable legacy modes to ensure interoperability with all generations of deployed set-top boxes

Audio Encoder

2 x stereo audio channel processing
MPEG-1 Layer II audio encoding standard
Encoding rates from 32 kbps to 384 kbps
Dolby Digital® (AC-3)
Encoding rates from 56 kbps to 640 kbps (option)
Pass through of pre-encoded Dolby® Digital (AC-3) 1 – 5.1 channel

VBI

World Standard Text (WST - ETS300472) 625 only
Closed captioning EIA-608, EIA-708 and SCTE 20
Closed captions inserted by line 21 or SMPTE 33A
Wide screen signaling (WSS) 625 only

Advanced Pre-processing

Adaptive bandwidth
Clarus™ professional grade adaptive spatial & temporal noise reduction offering four adaptive levels (option)
Scene cut detection and I frame insertion
Frame re-synchronization

Features

Internal test tone and test pattern generation
Auto switching on loss of input source to test pattern, colored image, last good video frame with selectable text message

EN8100 Output

Transport stream over Dual Gigabit Ethernet links for iSIS 8000® system deployments

EN8100 Control

Front panel
nCompass Control supported via dual Ethernet
Support for SNMP traps

Physical and Power

Dimensions (W x D x H)
485 x 578 x 44.5mm (19" x 22.8" x 1RU)
Approximate Weight
8.3 kg single encoder and single PSU
8.9 kg single encoder and dual PSU
0.33 kg each additional SD MPEG-2 option module
Power Input
100 - 120 VAC or 220 - 240 VAC wide ranging
Dual PSU option
Consumption
80W for a single channel encoder up to 280W maximum, depending on the number of SD MPEG-2 encoders fitted.

Environmental Conditions

Operating Temperature
-10°C to 50°C (14°F to 122°F)
Operating Humidity
<95% non-condensing

Compliance

CE marked in accordance with EU Low Voltage and EMC Directives
EMC Compliance
EN55022, EN55024, AS/NZS3548, EN61000-3-2 and FCC CFR47 Part 15B Class A
Safety Compliance
EN60950, IEC60950

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