



ERICSSON EN8040 VOYAGER

Voyager MPEG-4 AVC Multi-format DSNG

The new EN8040 is Ericsson's second-generation AVC multi-format DSNG. It is the most flexible and integrated news gathering product on the market, reflecting Ericsson's technology leadership and unique ability to create products of the very highest class. Unmatched in so many areas, the EN8040 excels whether you are considering its features, performance or the multiple upgrade paths that we offer for upgrading existing equipment to this exemplary standard.

The EN8040 is multi-standard and multi-format. Its hardware has the ability to support a variety of advanced encoding schemes as well as DVB-S2 modulation. This combination allows considerable bandwidth savings that can equate to transmitting high-quality HD within transponder bandwidths typically used for SD today. The benefits extend to far more than simply minimizing the transponder costs for HD, and includes the prevention of expensive upgrades to the truck's transmission infrastructure, the ability to use compact, power-limited fly-away antennas robustly for SD or HD, and even the ability to also use the EN8040 for terrestrial microwave (DENG) applications, where SD standards of radio-link range and robustness can be achieved with HD.

Since the EN8040 has been designed to bring the benefits of H.264-AVC encoding to professional contribution and distribution applications, particular attention has been paid to provide the best quality at low end-to-end latency. These low delay features and complimented by equivalent functionality for the RX1290 decoder.

PRODUCT OVERVIEW

Extraordinary Picture Quality and Significant Bandwidth Liberation for Higher Performance Encoding

The EN8040 excels in encoding performance. Supporting a range of horizontal resolutions at 1080i and 720p, extraordinary picture quality is supported at under 6 Mbps with improved visible artifact removal.

Designed Specifically for Contribution

The EN8040 offers unbeatable encoder performance coupled with efficient DVB-S2 modulation. It is very flexible, offering multiple latency modes, optimized MPEG-2 SD, MPEG-4 AVC HD and MPEG-4 AVC SD encoders which can be used individually or in combination. RAS, BISS and a range of advanced audio functions combine to provide a complete integrated MPEG-4 AVC DSNG of the highest order. In addition, customers with existing E57xx DSNG can upgrade their units to EN8040 specification easily and cost-effectively.

DVB-S2 Capability Provides Major Bandwidth Savings

DVB-S2 represents a step-change in bandwidth efficiency offering a 35 percent increase over DVB-S. Ericsson has offered DVB-S2 hardware support as standard since 2006. Customers can therefore activate DVB-S2 features via license key at any time.

Unrivalled Manufacturers Support

Should it be necessary to return a unit for service during the warranty period, Ericsson has a unique Advance Loan Scheme with committed spare units held in central stock to restore customer operations as quickly as possible. The EN8040 platform comes with a standard two-year warranty that together with the Advance Loan Scheme offers unrivalled support.

BASE UNIT FEATURES

EN8040 Encoder (EN8040/BAS/IF) and (EN8040/BAS/LBAND)

The EN8040 can operate as an SD only encoder using SD inputs or be license-enabled for H.264 AVC HD.

- MPEG-4 AVC SD real-time video encoding
 - Main profile at Level 3 (MP@L3) support
 - SDI and analog video inputs
 - Constant bit-rate encoding from 0.250 Mbps to 10 Mbps
- MPEG-4 AVC HD real-time video encoding (license enabled)
 - High profile compliant at Level 4 (HP@L4)
 - Constant bit-rate encoding from 1 Mbps to 25 Mbps
 - Low latency modes
- Extensive video pre-processing for optimum picture quality whatever the source
- Stereo Audio encoding
 - MPEG-1 Layer II and Dolby® Digital (AC-3)
 - Options for advanced audio and multi-channel encoding
 - Digital, analog and Serial Digital embedded inputs
- Control and monitoring via web browser, front panel
- MPEG-2 transport stream (ASI) output
- Simple license key upgrade for HOM and DVB-S2

EN8040 Encoder (EN8040/BAS/48V)

- As EN8040/BAS except with 48 VDC power supply

Note: An 18 to 36 VDC power option is available for special order.

HARDWARE OPTIONS

Dual Port IP Transport Stream Output (EN8000/HWO/IPTSDUAL)

- UDP/IP or RTP/UDP/IP encapsulation of MPEG-2 transport stream output
- GigE Ethernet physical interface
- CBR or VBR multicast outputs
- Multicasts MPTS transport stream from encoder, or can split services into individual SPTS for multicasting
- User configurable network and multicast parameters
- Supports SMPTE 2022 Pro-MPEG FEC

Audio Option Card (EN8000/HWO/AUDLIN2)

- Two stereo pairs supported per card
- Analog input levels: 12, 15, 18, 21, 22 and 24 dB
- MPEG-1 Layer II audio encoding
- Dolby® Digital (AC-3) 2.0 encoding
- Dolby Digital (AC-3) 1 to 5.1 channel and Dolby®E pass-through
- Linear PCM and DTS pass-through
- AES3 compliant input
- One audio option card may be fitted supporting a total of four stereo pairs in the unit, encoded as either MPEG-1 Layer II or Dolby Digital 2.0

Advanced Audio Encoder Module (EN8000/HDC/AUD)

- Advanced audio processing module enables additional stereo audio encoding with appropriate licensing
- Pass-through audio support, including glitch suppression on Dolby Digital (AC-3) pass-through services
- Hardware future-proofing for future audio encoding and transcoding requirements

BISS Option Card (EN8000/HDC/BISS)

- BISS (Basic Interoperable Scrambling System) for secure contribution links. Allows material to be protected from unwanted viewing using the BISS open standard. Supports BISS Modes 0, 1 and Mode E for encrypted session words (as defined in EBU Tech 3292, May 2002). This option is a daughter card and so does not occupy an option slot. The PC application for generating BISS-E encrypted session words can be downloaded from the encoder via a web browser.

REMUX (EN8000/HWO/REMUX)

- The REMUX card will re-multiplex three external transport streams with the locally generated stream. The card supports automatic PID re-mapping and resolves conflicts automatically. The REMUX card also supports the insertion of externally generated dynamic PSIP into the transport stream.

COFDM Modulator (EN8000/HWO/COFDM)

- Provides a DVB-T output at 70 MHz to interface with most terrestrial microwave link systems

Microwave Link Option Card

- For point-to-point application. Provides the modulated IF signal, 48 VDC power and remote control data needed to interface with an outdoor unit directly using a single coaxial or Triax cable. Contact Ericsson for more information.

SOFTWARE OPTIONS

Clarus™ Noise Reduction (EN8000/SWO/NR)

- Improves picture quality and reduces bit-rate requirement
- Fully adaptive spatial, temporal noise reduction
- Input processing and filtering

Clarus™ Input De-Blocking Filter (EN8000/SWO/DBF)

- Reduces macro block noise introduced by previous encoder
- Improves picture quality and reduces bit-rate requirement (check availability)

Advanced Audio Coding on ICE3 (EN8000/SWO/ICE3AAC)

- Enables a stereo pair of MPEG-2 AAC-LC (Low Complexity) or MPEG-4 (High Efficiency) HE-AACv1 or HE-AAC v2 audio encoding. One or two licenses are supported.

Advanced Audio Coding on the Audio Option Module (EN8000/SWO/AOMAAC)

- Enables a stereo pair of MPEG-2 AAC-LC (Low Complexity) or MPEG-4 (High Efficiency) HE-AAC v1 or HE-AAC v2 audio encoding. One to four licenses are supported. Three licenses enables 5.1 surround sound encoding.
- Requires EN8000/HDC/AUD

MPEG-4 HE-AAC Advanced Audio Coding (EN8000/SWO/MPEG4/HEAAC)

- Enables four stereo pairs or 5.1 surround sound and one stereo pair of MPEG-4 (High Efficiency) HE-AACv1 and HE-AAC v2 audio encoding
- Requires EN8000/HDC/AUD

Dolby® Digital (AC-3) Audio Coding (EN8000/SWO/AC3)

- Enables two stereo pairs of Dolby Digital (AC-3) audio encoding

SMPTE 2022 Pro-MPEG FEC (EN8000/SWO/PROFEC)

- Enables SMPTE 2022 Pro-MPEG FEC protection in the Dual IP output card for robust IP streaming

Simultaneous Picture-in-Picture Video Service Encoding Plus (EN8000/SWO/PIP)

- Simultaneous encoding of low resolution version of main video service
- Enables SD simulcast of the HD input
- MPEG-4 AVC real-time encoding
- User selectable resolution and bit-rate

Simultaneous SD MPEG-2 Encoding (EN8000/SWO/MPEG2)

- Enables an additional SD MPEG-2 encoder to allow simultaneous encoding of the SD input

RAS (EN8000/SWO/RAS)

- Allows material to be protected from illegal viewing using Ericsson's proprietary scrambling system

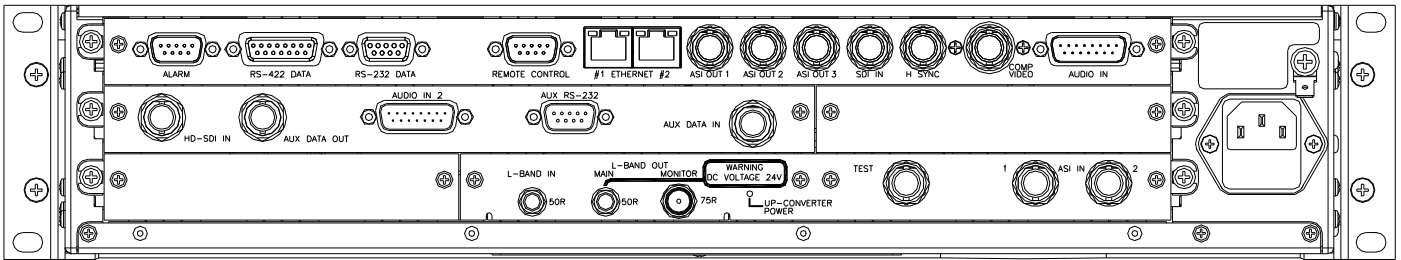
DVB-DSNG 8PSK (EN8000/SWO/SM38PSK) or 16 QAM (EN8000/SWO/SM316QAM)

- Higher order modulation upgrade

DVB-S2 QPSK and 8PSK (EN8000/SWO/SM3S28PSK) / DVB-S2 16APSK (EN8000/SWO/SM3S216APSK)

- DVB-S2 modulation upgrade

SAMPLE CONFIGURATION



SPECIFICATIONS

Inputs

HD Video

HD-SDI serial digital video with EDH error detection and health monitoring

SD Video

SDI serial digital video with EDH error detection and health monitoring

Composite video (PAL/NTSC)

SDI component 625 and 525 line standard supported

Audio

Two stereo pairs input via analog audio balanced 600Ω/20kΩ or AES-EBU

Up to four stereo pairs can be de-embedded from SD SDI and up to eight stereo pairs from the HD-SDI

Studio Reference

625 and 525 line HSYNC

Outputs

Note: Base unit will have either 70 MHz IF output or L-band output. Must be specified at time of order.

Signal conditioning: EN 300 421 (DVB-S) and EN 301 210 (DVB-DSNG) EN302-307 (DVB-S2)

Modulation: QPSK, optional 8PSK, 16QAM, DVB-S2 QPSK, 8PSK, 16APSK, 32APSK

Symbol Rate: 1 Msym/s to 48 Msym/s variable in 1 Sym/s increments

IF Output Option

IF frequency: 50 MHz to 180 MHz (1 kHz steps)

Output power: -20 dBm to +5 dBm (0.1 dB steps)

Monitor output: -20 dB relative to main IF output

L-band Output Option

Frequency: 950 MHz to 1750 MHz (1 kHz steps)

Output power: -20 dBm to +5 dBm (0.1 dB steps)

Monitor output: -30 dB relative to main output

Switchable up-converter power: +24 VDC, 500 mA max.

Switchable 10 MHz reference

ASI Outputs

Transport Stream: 3 x ASI Copper Single Program Transport Stream

Video Encoder

MPEG-4 AVC HD Video Compression

High profile compliant at level 4 (HP@L4)

1 Mbps to 25 Mbps

MPEG-4 AVC SD Video Compression

Main Profile at Level 3 (MP@L3)

0.250 Mbps to 10 Mbps, depending on resolution

Picture-in-Picture (option)

MPEG-4 AVC MP@L3 Progressive encoding

User selectable resolution and bit-rate

Supported Video Resolutions

HD Operation

1080 x 1920/1440/1280/960i 25

1080 x 1920/1440/1280/960i 29.97

720 x 1280/960/640p 50

720 x 1280/960/640p 59.94

SD Operation

576 lines x 720/704/640/576/544/528/480/352 pixels

480 lines x 720/704/640/576/544/528/480/352 pixels

288 lines x 352/320 pixels

240 lines x 352/320 pixels

Audio Encoder

MPEG-1 Layer II, up to six stereo pairs (option)

Dolby® Digital (AC-3) (option), up to six stereo pairs

MPEG-2 AAC-LC (option), up to six stereo pairs

MPEG-4 HE-AAC v1 (option), up to four stereo pairs or 1 x 5.1 and one stereo pair

MPEG-4 HE-AAC v2 (option) up to four stereo pairs

MPEG-4 AAC-LC 5.1 (option)

Data

RS-232 Supported baud rates 1200, 2400, 4800, 9600, 19200, 38400 baud

RS-422 n x 64 kbps from 64 kbps to 2048 kbps (selectable) or n x 56 kbps from 56 kbps to 1792 kbps (selectable)

Advanced Video Pre-processing

Clarus™ adaptive spatial and temporal noise reduction (option) and input de-blocking filters (option)

Closed captioning extraction via SMPTE 334

Image resizing (multiple resolutions)

Features

Easy-to-use front panel control

Web-based control

Accurate bit-rate control

No frame loss guarantee

Low delay modes

Physical and Power

Dimensions (W x D x H)

442.5 x 545 x 89mm (17.5" x 20.7" x 2RU)

Approximate Weight

10.5 kg (23 lbs)

Power Input

100 VAC to 120 VAC or 220 VAC to 240 VAC wide-ranging, or -48 VDC

Environmental Conditions

Operating Temperature

-10°C to 50°C (14°F to 122°F)

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, IE60950