The EN8190 MPEG-4 AVC HD encoder provides the best MPEG-4 AVC HD compression in the world using new technology, designed from the ground up.

In combination with DVB-S2 satellite modulation and the PREKOR™ Dynamic Pre-correction System by Ericsson enables operators to gain maximum performance from a satellite transponder. This product enables the most HDTV channels per transponder in the industry.

The EN8190 is also available as re-encoder variant to deliver a no compromise full decode / encode solution for cable and IPTV turnaround applications.

**PRODUCT OVERVIEW**

**Innovation Delivers Outstanding Coding Efficiency**

Based on 18 years of encoder design experience, the EN8190 option module is a radical new design. The EN8190’s unique multi-point look ahead supports an iRDO (Interpolating Rate Distortion Optimization) engine that extracts the maximum efficiency possible from the MPEG-4 AVC specification. This efficiency gain coupled with Reflex™ Statistical Multiplexing typically allows operators to get more HDTV channels into their transmission bandwidth than any other solution.

**Efficient use of Spectrum**

The EN8190 option module delivers compression efficiency that allows;

- Five to six HD channels in a typical digital terrestrial transmission channel using DVB-T2
- Seven to eight HD channels on a typical satellite transponder using DVB-S2 and PREKOR™
- Eight to ten HD channels on a typical DVB-C cable TV network

**Hot Swappable Support and Module Level Redundancy**

The EN8190 option module is hot swappable allowing in-field servicing and system expansion without disrupting other on-air channels.

Redundancy management under nCompass Control by Ericsson can be both module and chassis based for ultimate resilience without disruption non-failed channels.

**OPTION MODULE FEATURES**

**EN8190 Encoder (VP/HWO/EN8190/ENC, FAZ 101 0118/9)**

- The HD MPEG-4 AVC encoder option module supports;
  - Hot swappable
  - 3 Gbps HD SDI video input
  - Digital AES-EBU* and embedded HD SDI audio input
  - MPEG-1 Layer II Audio
  - Dolby® Digital (AC-3) 1 to 5.1 channel pass-through
  - 5.1 Audio Transcoding options
  - Fully exhaustive motion estimation
  - Closed caption support input via HD SDI SMPTE 334
  - Conversion of CEA 608 to CEA 708 format closed captions
  - SMPTE 2031 and OP47 support for Teletext services
  - Control via nCompass Control by Ericsson

**EN8190 Re-encoder (VP/HWO/EN8190/TRANS, FAZ 101 0118/76)**

- The HD MPEG-4 AVC re-encoder option module has the same features* as the EN8190 encoder with the addition of a transport stream input over IP allowing the re-encoder variant of the EN8190 to be configured as an encoder or transcoder.

*Digital AES-EBU input is not available on the re-encoder variant

MPEG-4 AVC High Definition System Encoder

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SOFTWARE OPTIONS

Clarus™ Motion Compensated Temporal Filtering (VP/SWO/HD/MCTF, FAZ 101 0118/51)
- Superior professional-grade noise reduction to address the most demanding noisy video sources while preserving high spatial resolution

Reflex™ (VP/SWO/REFLEX, FAZ 101 0118/15)
- 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 EN8190’s unique multi-point look-ahead encoders can deliver over 25 percent efficiency gain for a typical 12 channel system
- One license required per encoder module

Additional MPEG-1 Layer II Encoding (VP/SWO/M1L2, FAZ 101 0118/13)
- Enables one pair of MPEG-2 Layer II audio encoding
- Up to six additional pairs of audio per encoder module can be supported to make a total of eight pairs per module

Dolby® Digital Stereo Encoding (VP/SWO/DOLBY/AC3, FAZ 101 0118/12)
- Enables one pair of Dolby Digital (AC-3) stereo audio encoding
- Three licences enable 5.1 encoding
- Up to six pairs per encoder module can be supported

Dolby® Digital Plus Stereo Encoding (VP/SWO/DOLBY/PLUS, FAZ 101 0118/58)
- Enables one pair of Dolby Digital Plus stereo audio encoding
- Three licences enable 5.1 encoding
- Up to six pairs per encoder module can be supported

AAC Encoding (VP/SWO/AAC, FAZ 101 0118/55)
- Enables one pair of Dolby Digital (AC-3) stereo audio encoding
- Includes support for AAC-LC, HE AAC and HE AACv2
- Three licences enable 5.1 encoding
- Up to eight pairs per encoder module can be supported

Dolby®E to Dolby® Digital 5.1 Transcoding
- This functionality is enabled with the Dolby-E decode option (VP/SWO/DOLBY E/DEC, FAZ 101 0118/63) and three Dolby Digital stereo encode options
- Transcode includes a down-mix to a stereo pair which can be encoded as MPEG-1 Layer II
- Automatic selection of a back-up LPCM pair on loss of Dolby-E, including meta data generation
- Two transcode per encoder module can be supported

ALC (Automatic Loudness Control) (VP/SWO/ALC, FAZ 101 0118/113)
- This feature corrects sustained audio level mismatches between interstitials and main program content
- Each licence enables ALC for one audio pair of encoding in any audio format
- Two ALC licences enable ALC for a 5.1 surround sound encode
- ALC can be applied to an audio transcode as well as straight encode from a LPCM audio input.

Please contact Ericsson or an approved reseller to confirm which combinations of options are supported.
**HD MPEG-4 AVC Video and Audio Encoder / Re-encoder Option Module**

- One to two HD MPEG-4 AVC option modules
- Full support for module level hot swap

**HD MPEG-4 AVC Option Module Inputs**

- **Video**
  - HD SDI serial digital video with EDH error detection and health monitoring
  - HSYNC support for single PCR operation (option)

- **Audio**
  - Up to eight stereo pairs embedded on HD SDI
  - Up to four stereo pairs via AES EBU (Encoder only)
  - Supports both balanced (AES3) and unbalanced (AES3id) digital audio inputs (Encoder only)

**Video Encoder**

- MPEG-4 MP / HP@L4.0 Encoding
- 2 Mbps to 25 Mbps
- "Pixel Perfect" fully exhaustive motion estimation
- Reflex™ by Ericsson Statistical Multiplexing support (option)

**HD Resolutions**

- 1920/1440 x 1080i 25
- 1920/1440 x 1080i 29.97
- 1280/960 x 720p 50
- 1280/960 x 720p 59.94
- GOP processing includes adaptive GOP structure and adaptive GOP length

**Audio Encoder**

- 2x 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) - maximum of three pairs
  - MPEG-2 AAC-LC (option), up to five stereo pairs
  - MPEG-4 HE-AAC v1 (option), up to five stereo pairs
  - MPEG-4 HE-AAC v2 (option) up to five stereo pairs
  - Pass through of pre-encoded Dolby® Digital (AC-3) 1 to 5.1 channel
- **Dolby®E to Dolby® Digital (AC-3) 5.1 transcoding**
  - Includes down mix to stereo and auto selection of a stereo backup

**VANC Data Extraction**

- SMPTE 334-1 Closed Captions
- SMPTE 2016-3 AFD and Bar Data
- SMPTE 2031 Teletext
- OP47 Teletext subtitles

**Advanced Pre-processing**

- Clarus™ professional grade Motion Compensated Temporal Filtering. (Optional)
- Frame re-synchronization

**Features**

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

**Physical and Power**

- **Approximate Weight**
  - 0.66 kg (1.5 lbs) per HD MPEG-4 AVC option module
- **Power Consumption per module**
  - 110 Watt

**Environmental Conditions**

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