



# ERICSSON EN8180 MPEG-2 HD ENCODER MODULE



## MPEG-2 High Definition System Encoder

The EN8180 MPEG-2 HD encoder is Ericsson's fourth-generation MPEG-2 HD encoder delivering a 30 percent increase in efficiency compared to the previous generation of HD MPEG-2 encoders. The EN8180 allows ATSC and DVB terrestrial broadcasters to maintain or improve picture quality while adding new services such as mobile.

### PRODUCT OVERVIEW

#### Delivering Outstanding Coding Efficiency

The EN8180 option module is a radical new design. The EN8180's RDO (Rate Distortion Optimization) engine extracts the maximum efficiency possible from the MPEG-2 specification. This efficiency gain coupled with Reflex™ Statistical Multiplexing by Ericsson typically allows operators to get more HDTV channels into their transmission bandwidth than any other solution.

When combined with the EN8100 SD MPEG-2 encoder module in a mixed statistical multiplex, the EN8180 delivers the most bit-rate efficient solution available for mixed SD and HD MPEG-2 broadcasts.

#### Hot Swap Support and Module level redundancy

Up to six EN8180 modules may be fitted in a Video Processor chassis. The EN8180 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

#### EN8180 Encoder (VP/HWO/EN8180/ENC, FAZ 101 0118/70)

- The HD MPEG-2 encoder option module supports;
  - Hot swappable
  - 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 EIA 608 to EIA 708 format closed captions
  - OP47 support for Teletext services
  - Control via nCompass Control by Ericsson

**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 EN8180'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.

## SAMPLE CONFIGURATION



## SPECIFICATIONS

### HD MPEG-2 Video and Audio Encoder Option Module

Up to six HD MPEG-2 encoder option modules may be fitted in the Video Processor Chassis

Full support for module level Hot Swap

### HD MPEG-2 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

Supports both balanced (AES3) and unbalanced (AES3id) digital audio inputs

### Video Encoder

MPEG-2 MP@HL Encoding

2 Mbps to 25 Mbps

"Pixel Perfect" fully exhaustive motion estimation

Reflex by Ericsson statistical multiplexing support (option)

#### HD Resolutions

1920/1440/1280/960 x 1080i 25

1920/1440/1280/960 x 1080i 29.97

1280/960/640 x 720p 50

1280/960/640 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

OP47 Teletext

### Advanced Pre-processing

Clarus™ professional grade Motion Compensated Temporal Filtering. (option)

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

0.33 kg (0.73 lbs) per HD MPEG-2 option module

#### Power Consumption per module

35 Watt

### Environmental Conditions

#### Operating Temperature

-10°C to 50°C (14°F to 122°F)

#### Operating Humidity

<95% (Non-condensing)