ERICSSON E5750 VOYAGER

Voyager MPEG-2 Standard Definition DENG

Broadcasters and news gathering organizations want pictures from anywhere in the world, live, and at an instant. Increasingly, they are looking to mobile microwave links to cover news events in places where using satellite is difficult, such as in the world's largest cities, or where satellite is too slow or expensive, as during natural disasters or fast-breaking events. New technology includes digital COFDM systems, which have rapidly replaced analog transmission because they are fast to set-up, more efficient and don't have point-to-point link limitations. The Ericsson E5750 Voyager Digital ENG system is designed for this market, offering robust, long-range DENG transmission with outstanding MPEG-2 encoding, highest picture quality and a flexible array of options.

The E5750 is available in 4:2:0 and 4:2:2 encoding versions in a 2RU chassis, offering a complete range of quality options including ultra high-performance encoding for special events. The encoder also supports a range of low-latency modes to reduce encoding delay, and can be upgraded to MPEG-2 high definition (HD) or MPEG-4 AVC (SD and HD) with option cards.

Ericsson can configure the E5750 with a DVB-S2 modulator card along with the COFDM modulator, providing a dual-purpose DENG/DSNG system for maximum flexibility and convenience. The unit supports all of the major DVB-T modes and can support RF output with the addition of a RF up-converter card. Ericsson's extensive video pre-processing combined with advanced encoding techniques provides superior picture quality and a longer |transmission range over the COFDM link.

PRODUCT OVERVIEW

Highly Flexible DENG Platform

The E5750 is easily adaptable from fast-paced news gathering to concerts and high-quality sporting events with its 4:2:0 and 4:2:2 encoding capabilities. The 2RU chassis allows up to five option cards, which enables a highly customized solution. Options include MPEG-2 HD or MPEG-4 AVC HD/SD encoding formats for lower bit-rate, higher quality delivery. Ericsson's powerful REMUX option card provides MPEG multiplexer and multi-channel MCPC capability.

DC Power and Remote Control Support for External Up-converters

ENG delivery can require additional amplification and external RF frequency conversion. The E5750 can support a TRIAX option card for transferring the modulated IF signal over large distances. The card provides DC power (+48 V) to support an external, integrated up-converter and power amplifier for all established DENG frequency bands. For shorter cable distances between the DENG equipment and the TX antenna an internal RF up-converter card can be used.

Dual Purpose DENG and DSNG Platform

The E5750 with an integrated COFDM modulator can also be equipped with a DVB-S2 modulator, which can provide up to 35 percent bandwidth savings for satellite applications. This provides a highly flexible dual-purpose platform for news gathering operations, allowing news teams to decide the best method for delivery based on their needs at any given time.

Upgrade Paths to High Definition

The E5750 can be upgraded to provide either MPEG-2 HD /SD, MPEG-4 AVC HD/SD. The ability to provide MPEG-2 SD is retained in both cases. Our MPEG-4 HD option has proven to be of great value to those finding that using MPEG-2 HD increases bit-rate too much, causing transmission range and stability problems that using MPEG-4 HD solves.

BASE UNIT FEATURES

Voyager E5750 DENG (M2/VOY/E5750)

- COFDM modulator supporting all major DVB-T modes
- Input confidence monitoring
- Easy-to-use front panel with alphanumeric keypad and eight soft keys
- Flexible expansion support – up to five slots available
- Sixteen fully adjustable operational configurations
- Selectable range of delay modes for low latency operation

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

HARDWARE OPTIONS

Note: Contact Ericsson or an approved reseller to confirm which combinations of options are supported.

L-band Satellite Modulator (M2/EOM2/SM3LBAND)

- Allows an L-band satellite modulator to be added to the E5750

- The L-band satellite modulator includes a switchable 10 MHz reference and switchable block up-converter DC power. The modulator is hardware-ready for HOM and DVB-S2 as standard.

IF Satellite Modulator (M2/EOM2/SM3IF)

- Allows an IF satellite modulator to be added to the E5750. The modulator is hardware-ready for HOM and DVB-S2 as standard.

Audio Option Card (M2/EOM2/AUDLIN2)

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

REMUX (M2/EOM2/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 service name conflicts.
- The REMUX card also supports the insertion of externally generated dynamic PSIP into the transport stream.

BISS Scrambler Card (M2/EDCOM2/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). An application for generating encrypted session words can be downloaded from the encoder via a web browser.

IP Output (M2/EOM2/IPTSDUAL)
- Dual output
- UDP/IP or RTP/UDP/IP encapsulation of MPEG-2 transport stream output
- 100/1000BaseT Ethernet physical interface
- Multicast or unicast capable
- Supports multiple SPTS streams

SOFTWARE OPTIONS

Performance Upgrade (M2/ESO2/PU)

- The performance upgrade enables advanced Ericsson coding algorithms that increase the efficiency by at least 0.8 Mbps per channel. It also reduces the lower bit-rate limit to 256 kbps. A complimentary thirty-day trial license is available upon request.

Auto-Concatenation (M2/ESO2/ACON)

- Aligns the encoder to the previous encoder's GOP structure to significantly reduce coding artifacts caused by successive coding and decoding.

Noise Reduction (M2/ESO2/NR)

- Four levels of professional-grade adaptive noise reduction plus three fixed levels of noise reduction

MPEG-2 422P@ML (M2/ESO2/422)

- For professional editing quality pictures 1.5 Mbps to 50 Mbps

RAS (M2/ESO2/RAS)

- Allows material to be protected from illegal viewing using Ericsson's proprietary scrambling system
- Low symbol rate software option (M2/ESO2/LSYM) – for satellite modulator option
- Low symbol rate operation, down to 300 Ksym/s, allows operation on a tight link budget using low power amplifiers and small dishes

DVB-S 8PSK/16QAM (M2/ESO2/SM38PSK, M2/ESO2/SM316QAM) – for satellite modulator only

- DVB-S higher order modulation upgrades

DVB-S2 QPSK and 8PSK (M2/ESO2/SM3S28PSK) / DVB-S2 16APSK (M2/ES02/SM3S216APSK)
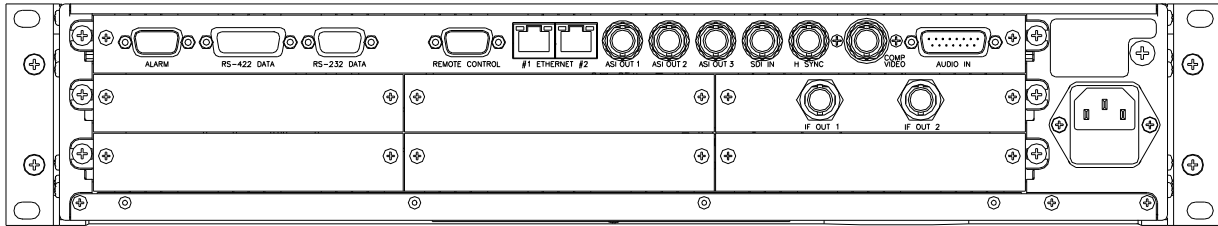
- DVB-S2 modulation upgrade

NABTS VBI Extraction (M2/ES02/525VBIDATA)

- Enables the extraction of NABTS data from the VBI and carriage in a transports stream packet as per EIA 516

SMPTE 2022 Pro-MPEG FEC (M2/ESO2/IPROFEC)

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

08-2010-v2

SAMPLE CONFIGURATION

SPECIFICATIONS

Inputs

Video

Analog composite video (PAL/NTSC) 10-bit sampling

SNR >60 dB

SDI serial digital video 625 and 525 line standard supported with EDH error detection and health monitoring

HSYNC support for 625 and 525 line

Audio

Two stereo pairs input via analog, AES-EBU or SDI

Analog audio balanced 600Ω/20 kΩ

Input levels: 12, 15, 18, 21, 22 and 24dB

Up to four stereo pairs can be de-embedded from SDI

Outputs

OFDM Modulator

Main 70 MHz IF output, nominal 0 dBm

Monitor 70 MHz IF output, -10 dBm

6, 7 or 8 MHz bandwidth

QPSK, 16QAM or 64QAM modulation

Selectable guard interval and FEC Rate

2k carriers or 8k carriers

Compliant to ETS 300 744

Transport Stream

3 x ASI Copper Single Program Transport Stream

Video Encoder

Vertical resolutions: 576, 288 (PAL), 480, 240 (NTSC)

Horizontal resolutions: 720, 704, 640, 544, 528, 480, 352

MPEG-2 MP@ML

1.5 Mbps to 15 Mbps (without performance upgrade)

0.256 Mbps to 15 Mbps (with performance upgrade)

Performance upgrade option enables long GOP and adaptive GOP features

MPEG-2 422P@ML (option)

1.5 Mbps to 50 Mbps

"Pixel Perfect" fully exhaustive motion estimation

Audio Encoder

2 x stereo audio channel processing

MPEG 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

Dolby® Digital (AC-3) 1 – 5.1 channel, Dolby®E, linear PCM and DTS pass-through

VBI

World Standard Text (WST – ETS300472) 625 only

Closed captioning EIA-608, EIA-708 and SCTE 20

Nielsen data AMOL I & AMOL II, 525 only

NABTS - 525 line only (option)

Video Index and Active Format Descriptor (AFD)

Video programming signal (VPS) 625 only

Wide screen signaling (WSS) 625 only

Time code from VITC

Data

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

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

Advanced Pre-processing

Ericsson professional grade adaptive spatial & temporal noise reduction offering four adaptive levels plus three fixed levels (option)

"Auto-Concatenation" I frame detection and alignment system – optimizes re-encoding performance (option)

Film mode inverse 3:2 pull-down

Scene cut detection

Frame re-synchronization

Features

Selectable range of delay modes for low latency operation

Front panel LCD with easy set-up and operation

Sixteen fully adjustable operational configurations

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

Input freeze frame and audio silence detection

Logo insertion

Control

Front panel LCD with quick access keys

RS-232 and RS-485 interfaces for remote control

Support for external SNMP control

Support for SNMP traps

Full control & monitoring via web browser

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 – 120 VAC or 220 – 240 VAC wide ranging or -48 VDC

Consumption

100W no options, 250W maximum, depending on the option cards selected

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, IE60950