E5714
Voyager DSNG

The E5714 combines a high quality MPEG-2 encoder with a DVB modulator to produce a versatile DSNG system for deployment in a variety of outside broadcast (OB) applications.

Business Benefits

Quick and easy to set up

- Simple easy to use front panel display
- Automatic parameter calculations

Top performance video and satellite transmission

- TANDBERG Television's 5th generation MPEG-2 video encoder
- Integrated QPSK modulator
- L-band version is upgradable to 8PSK and 16 QAM

Highly versatile and cost-effective

- IF or L-band output options
- Space efficient
- Extensive range of software and hardware options to tailor to specific requirements
- Upgrade path to DVB-S2 (L-band version only)

Application

The E5714 can be deployed within DSNG systems requiring either L-Band or IF modulation output capability in a 1RU chassis. It has the flexibility and performance to meet the needs of a variety of applications from low data rate flyaways to high bandwidth multi-channel SNG trucks.

The two modulator configurations allow the E5714 to be applied to a wide range of DSNG applications that interface at either L-Band or IF.

Base Units

NOTE: The DVB-S modulator provides *either* an L-Band output *or* 70MHz IF output. The correct card must be specified at time of ordering.

E5714 IF output (M2/VOY/E5714-IF)

E5714 L-band output (M2/VOY/E5714-LBAND)

The unit offers the most advanced MPEG encoding system ever seen in a space saving 1RU package.

An upgrade path to DVB-S2 is available for the L-band model.

Software Options

Performance Upgrade (M2/ESO2/PU)

The Performance Upgrade enables advanced TANDBERG Television coding algorithms that increase the efficiency by at least 0.8 Mbit/s per channel. It also reduces the lower bit-rate limit to 256 kbit/s. A complimentary 30 day trial license is available upon request.

Low symbol rate software option (M2/ESO2/LSYM) – supported on E5714 L-Band only

Low symbol rate operation, down to 300 kSym/s, allows operation on a tight link budget using low power amplifiers and small dishes.

8PSK and 16QAM modulation (M2/ESO2/SM38PSK, M2/ESO2/SM316QAM) – supported on E5714 L-Band only

Higher Order Modulation upgrade.

DVB-S2 QPSK, 8PSK, 16APSK modulation (M2/) – supported on E5714 L-Band only

DVB-S2 license. All L-band modulators shipped post January 2006 are capable of DVB-S2 operation as standard.

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.

Software Options (continued)

Noise Reduction (M2/ESO2/NR)

Four levels of professional-grade adaptive noise reduction plus 3 fixed levels of noise reduction.

MPEG-2 4:2:2P@ML (M2/ESO2/422)

For professional editing quality pictures, 1.5 Mbit/s to 50 Mbit/s.

RAS (M2/ESO2/RAS)

Allows material to be protected from illegal viewing using TANDBERG Television's proprietary scrambling system.

Dolby AC3 Two Channel Encoding (M2/ESO2/AC3)

Enables Dolby Digital (AC-3) stereo encoding. The first two stereo pairs are free of charge.

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.

DTS (Digital Theater Sound) (M2/ESO2/DTS)

Enables pass through of pre-encoded DTS audio.

Digital Program Insertion (M2/ESO2/DPI)

Enables carriage of DPI messages as per SCTE 35 control by either DVS 525 or contact closure read by the GPI input option card.

Hardware Options

Audio Option Card (M2/EOM2/AUDLIN) – supported on E5714-IF only

- Two stereo pairs supported per card
- MPEG Layer II audio encoding
- Dolby Digital® (AC-3) encoding
- Dolby Digital® (AC-3) 1 – 5.1 channel and Dolby E pass-through
- Linear PCM and DTS pass-through

One additional audio option card may be fitted supporting a total of 4 stereo pairs in the unit.

IP Output (M2/EOM2/IP)

- UDP/IP encapsulation of MPEG-2 transport stream output
- Supports transport stream rates up to 80 Mbit/s (including FEC).
- Includes support DVB IPI FEC
- 10 / 100 Base-T Ethernet physical interface
- Multicast or unicast capable
- Support multiple SPTS streams

IP Output (M2/EOM2/IP/PROFEC)

- UDP/IP encapsulation of MPEG-2 transport stream output
- Supports transport stream rates up to 80 Mbit/s (including FEC).
- Includes support for Pro MPEG FEC
- 10 / 100 Base-T Ethernet physical interface
- Multicast or unicast capable
- Support multiple SPTS streams

Hardware Options (continued)

IP Output (M2/EOM2/IPTSDUAL)

- Dual output
- UDP/IP or RTP/UDP/IP encapsulation of MPEG-2 transport stream output
- 100 / 1000 Base-T Ethernet physical interface
- Multicast or unicast capable
- Support multiple SPTS streams

REMUX (M2/EOM2/REMUX) – support on E5714-IF only

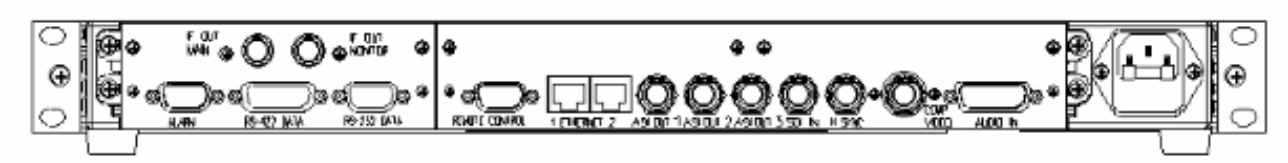
The REMUX card will re-multiplex three external transport streams with the locally generated stream. The card supports automatic PID re-mapping and resolves service name conflicts.

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). This option is a daughter card and so does not occupy an option slot.

Sample Configuration: E5714IF



TANDBERG television

E5714
Voyager DSNG

INPUTS

Video
- Analog composite video (PAL/NTSC) 10bit sampling
- SNR >60dB
- 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
- 2 stereo pairs input via analog, AES-EBU or SDI
- Analog audio balanced 600Ω/20kΩ
- Input levels: 12, 15, 18, 21, 22 and 24dB
  Up to 4 stereo pairs can be de-embedded from SDI

OUTPUTS

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

3 x ASI Copper Single Program Transport Stream

E5714-IF
- QPSK Modulated (EN 300 421) 70MHz +/- 20MHz IF output tunable in 125kHz steps
- Maximum symbol rate 30Msym/s between 60 to 80MHz (20Msym/s at 50 and 90MHz)

E5714-L-Band
- Frequency: 950 to 1750 MHz (1kHz steps)
- Output Power: -20 to +5 dBm (0.1 dB steps)
- Monitor Output: -30 dB relative to main output
- Switchable 10MHz reference
- No Upconverter Power is supported in the 1RU
- Modulation: QPSK, 8-PSK (option) and 16-QAM (option)
- Symbol rate: 1 to 48 MSym/s variable in 1 Sym/s increments
- EN 300 421 (DVB-S) and EN 301 210 (DVB-DSNG)

VIDEO ENCODER

MPEG-2 MP@ML
- 1.5 to 15 Mbit/s (without performance upgrade)
- 0.256 to 15 Mbit/s (with performance upgrade)
- Performance Upgrade option enables long GOP and adaptive GOP features

MPEG-2 422P@ML (option)
- 1.5 to 50 Mbit/s
- "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

AUDIO ENCODER

2 x stereo audio channel processing

MPEG Layer II audio encoding standard
- Encoding rates from 32kbps to 384kbps

Dolby Digital® (AC-3)
- Encoding rates from 56kbps to 640kbps
- Dolby Digital® (AC-3) 1 – 5.1 channel, Dolby-E, linear PCM and DTS pass-through

VBI

- World Standard Teletext (WST – ETS300472) 625 only
- Closed Captioning EIA-608, EIA-708 and SCTE 20
- Nielson 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 signalling (WSS) 625 only Time Code from VITC

ADVANCED PRE-PROCESSING

- "Pixel Perfect" fully exhaustive motion estimation
- TANDBERG professional grade adaptive spatio & temporal noise reduction (optional)
- "Auto-Concatenation" I frame detection and alignment system (option)
- Film mode inverse 3:2 pull down
- Frame re-synchronization
- Image re-sizing filters from full to ¾, ⅔, ½ or ¼ resolution

FEATURES

- Selectable range of delay modes for low latency operation
- Front panel LCD with easy set up and operation
- 16 fully adjustable operational configurations
- Internal test tone and test pattern generation
  Auto switching on loss of input source to test pattern, coloured image, last good video frame with selectable text message
- Input freeze frame and audio silence detection
- Logo insertion
- Upgrade path to DVB-S2 (L-band version only)

CONTROL

- Front panel
- TANDBERG nCompass Control supported via dual Ethernet
- RS-232 & 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 44.5mm
(17.5" x 20.7" x 1RU)
Approx Weight: 7.5kg
Power Input:
100 – 120 Vac or 220 – 240 Vac wide ranging
Consumption:
95W no options. 150W maximum, depending on the option card 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

OPTIONAL UPGRADES

- **Video encoding:**
  MPEG-2 422P@ML Bit-rate Range 1.5 to 50 Mbit/s
- Performance Upgrade, saves circa 0.8 Mbit/s per channel
- Advanced Noise Reduction

RAS and/or BISS scrambling:
- (as per EBU Tech 3292 May 2002)
  Allows material to be protected from illegal viewing

Higher order modulation:
- L-band version can be upgraded to support 8PSK or 16QAM

OPTION CARDS

***(Note: Only one of the following options may be fitted at any one time to the E5714-IF)**

***Additional Audio:**
Audio card allowing a maximum of 4 stereo pairs total per unit
***Internal Re-Multiplexer**
Provides up to 13 Channel MCPC Operation, max 50 Mbit/s
***IP:** IP output for IP streaming.
* Dual Gig-E IP

DATA

- RS-232. Supported baud rates 1200, 2400, 4800, 9600, 19200, 38400 baud
- RS-422 n x 64 kbit/s from 64 kbit/s to 2048 kbit/s (selectable) or n x 56 kbit/s from 56 kbit/s to 1792 kbit/s (selectable)

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