RX8250

HD Program Transcoder

Broadcasters and Programmers are continually looking to take advantage of technological advances that reduce their distribution costs. MPEG-4 AVC compression in conjunction with DVB-S2 satellite transmission is the perfect combination to achieve such transmission efficiency gains. However, cable TV systems are locked into MPEG-2 technology for the foreseeable future by the deployed set-top box population.

The TANDBERG RX8250 HD Program Transcoder allows cable systems to continue MPEG-2 operation whilst allowing the Programmer to distribute using MPEG-4 AVC compression by offering high quality transcoding from MPEG-4 AVC to MPEG-2.

In combination with the TANDBERG Director content protection and flexible over-air receiver control system, the RX8250 provides the capability to receive a bandwidth efficient DVB-S2 transmission and decrypt a selected MPEG-4 AVC HD service. By using the highest quality transcoding techniques, the RX8250 generates a single program MPEG-2 HD transport stream for transmission into an MPEG-2 based cable headend.

The RX8250 achieves a total solution within one unit by offering high quality, AFD controlled, HD to SD down-conversion to generate analog video and audio outputs - thereby providing compatibility with both digital and legacy analog cable tiers.

PRODUCT OVERVIEW

Increased Distribution Capacity and Efficiency

The RX8250 HD Program Transcoder, in combination with TANDBERG Television's MPEG-4 AVC encoders and DVB-S2 PREKOR™ satellite modulators achieves a level of bandwidth efficiency that is unrivalled allowing more HD services per transponder compared with any competing solution.

Number of Video Services per satellite transponder

Legacy HD — **2**
HD MPEG-4 — **4**
Limit of Technology for Competition — **5**
More services with TANDBERG Television (HD MPEG-4 + DVB-S2, HD MPEG-4 + DVB-S2 + Prekor™) — **6**

RX8250 HD Program Transcoder - a "Safe Choice" for the Future

By providing the capability for the RX8250 to output high quality MPEG-2 HD transport streams or the native incoming MPEG-4 AVC stream, the RX8250 is the safe choice for the future enabling the eventual swap-out of the MPEG-2 set-top box population to MPEG-4 AVC capable devices with no change in receive head-end equipment.

Simplified Control and Lower Cost of Operations

Organizations with large populations of RX8250s or other TANDBERG receivers can simplify control by integrating with the TANDBERG Director control system. Director provides remote, over-air, single-view control from a central location, reducing the need for on-site local operators.

BASE UNIT FEATURES

RX8250 – HD Program Transcoder (RX8250/BAS)

The following features are available as standard:

- DVB-S / DVB-S2 satellite input
- 1 x ASI input transport stream
- MPEG-4 HD 4:2:0 to MPEG-2 HD 4:2:0 video transcoding
- 2 x ASI output transport streams
- 2 x composite video output
- 2 x balanced analog stereo audio outputs

HARDWARE OPTIONS

IP Transport Stream Output (RX82XX/HWO/IP/OUT)

- Encapsulation of transport stream output into IP multicast
- 2 x Gigabit Ethernet RJ-45 interfaces

Screw Terminal Audio Break-Out Cable (RX8XXX/CABLE/SCRTRM)

- Provides screw terminal connections for analogue audio output
- 1 x stereo pair per breakout cable

XLR Terminal Audio Break-Out Cable (RX8XXX/CABLE/XLR)

- Provides XLR terminal connections for analogue audio output
- 1 x stereo pair per breakout cable via 2 x XLR connectors

SOFTWARE OPTIONS

Input Options

The RX8250 comes with DVB-S QPSK support as standard. The unit can optionally be licensed to support the new highly efficient DVB-S2 satellite transmission standard.

DVB-S2 QPSK License (RX82XX/SWO/DVBS2/QPSK)

- Adds DVB-S2 QPSK capability to DVB-S2 input option card

DVB-S2 8PSK License (RX82XX/SWO/DVBS2/8PSK)

- Adds DVB-S2 QPSK, 8PSK capability to DVB-S2 input option card

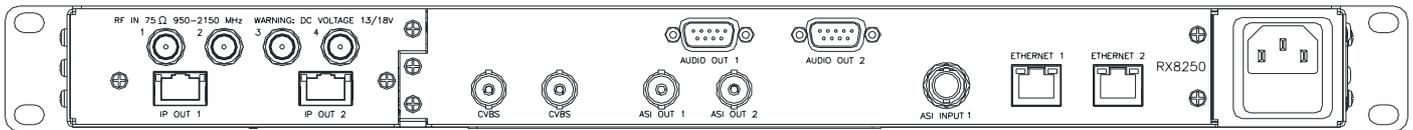### DVB-S2 Low Symbol Rate License (RX82XX/SWO/DVBS2/LSYM)

- Enables DVB-S2 symbol rate of 1 to 5 Msym/s

Other Software Options

Password Protection of Web Browser (RX82XX/SWO/PW)

- Protects Web browser from malicious or accidental changes

SAMPLE CONFIGURATION

SPECIFICATIONS

Video Standards

Input

MPEG-4 AVC HD

Profiles: MP@L4, HP@L4

Max. video rate: 20 Mbps

Video format: 1080i at 29.97 fps or 720p at 59.94 fps

Output

MPEG-2 HD

Profiles: MP@HL

Min. video rate: 8 Mbps

Max. video rate: 20 Mbps

Video format: 1080i at 29.97 fps or 720p at 59.94 fps

Video Monitoring

Down-conversion (HD to SD): center cut-out, letter box, AFD controlled

Aspect ratio conversion: 16:9 to 4:3

VBI: Closed Captions, V-Chip, AMOL, TV Guide

Audio Standards

Audio Pass-through

Dolby® Digital

No. stereo pairs: 2

Audio Monitoring

Dolby® Digital down-mix

Sampling rate: 48 kHz

No. stereo pairs: 2

Ancillary Data

Closed Captions pass-through

AFD pass-through

SCTE35 pass-through

SCTE127 pass-through

Input Interfaces

ASI Transport Stream Input

Connector: 1 x BNC (F) 75 Ohm

Max. input rate: 160 Mbps

Packet length: 188/204 byte packets

Standard: EN50083-9

Satellite Input

Connector: 4 x F-Type (F), 75 Ohm

Modulation: DVB-S QPSK as standard

DVB-S2 QPSK and 8PSK options with license keys

Frequency range: 950 to 2150 MHz

Input level: -25 dBm to –65 dBm

Symbol rate: 1 - 45 Msym/s (DVB-S)

1 - 31 Msym/s (DVB-S2) 5 -31 Msym/s as standard, 1-5 Msym/s with license key

Bit-rate: 81 Mbps Max. (DVB-S2)

FEC, DVB-S: 1/2, 2/3, 3/4, 5/6, 7/8

FEC, DVB-S2 QPSK: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

FEC, DVB-S2 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10

DVB-S2 FEC frame: Normal frames

LNB Power: 13V, 18V or off, 22 kHz on/off

Standard: EN300 421, EN302 307

Outputs

ASI Transport Stream Output

ASI standard: EN50083-9

Connector 2 x BNC (F) 75 Ohm

IP Transport Stream Output (Option)

Transport encapsulation into IP

MPTS/IP/UDP

2 x GigE outputs, 100/1000 autosensing

Composite Video

Connector: 2 x BNC (F) 75 Ohm

Format: PAL / NTSC

Audio

Connector: 2 x 9 pin D-type

Analog audio: 2 stereo pairs

Features

Program selection for ATSC, DVB and MPEG-only streams

Input transport rate up to 160 Mbps (Nominal)

1 alarm relay

Conditional Access Options

TANDBERG Director content protection

Control Options

Front panel keypad and LCD

SNMP traps and alarms

Web browser

TANDBERG Director over-air control

Physical and Power

Dimensions (W x D x H)

442.5 x 545 x 44mm (17.5" x 20.7" x 1.75" approx.)

Input Voltage

110/240 VAC

Power Consumption

45W Max. (depending on options fitted)

Cooling

Integrated fan

Environmental Conditions

Operating Temperature

0°C to +50°C (32° to 122°F)

Storage Temperature

-20°C to +60°C (4° to 140°F)

Relative Humidity

5 to 95%

Compliance

CE marked in accordance with EU Low Voltage and EMC Directives

EMC Compliance

EN55022, EN61000-3-2[10], EN61000-3-3[10], EN55024, CISPR22, FCC CFR47 Part 15B Class A

Safety Compliance

EN60950-1, IEC60950-1, UL60950-1