RX1290

Multi-format SD/HD Integrated Receiver Decoder

Video professionals, broadcasters and newsgathering organizations face increasing demands to shoot and deliver video in multiple formats and standards whilst optimizing their operational costs. As television moves from MPEG-2 to MPEG-4 AVC, from standard definition (SD) to high definition (HD),TANDBERG Television's RX1290 is uniquely positioned to address these multi-format, multi-standard needs by combining MPEG-2, MPEG-4 AVC, SD and HD with the capability to decode both 4:2:0 and 4:2:2 video. The RX1290 has been hailed by the broadcasting industry as a truly ground-breaking product, at its launch winning the Cable & Satellite International Product of the Year Award for Best Contribution and Distribution solution at the 2006 International Broadcasting Convention (IBC).

The RX1290's capability to decode all video formats, coupled with a wide choice of input options for all transmission mediums makes the receiver the smart choice for professionals seeking a future-proof solution. This unique flexibility makes the RX1290 the only full MPEG-4 AVC HD solution for mobile applications. The RX1290 provides significant benefits for organizations who wish to migrate their operations from MPEG-2 SD to MPEG-4 AVC HD. The multi-format capability of the RX1290 allows a significant cost reduction to the traditional migration path of operating separate devices for SD and HD. With the RX1290, customers can upgrade the unit with licenses rather than migrating via a hardware upgrade path thereby giving maximum flexibility.

PRODUCT OVERVIEW

Increased Distribution Capacity and Efficiency

The RX1290 multi-format professional receiver, in combination with the TANDBERG Television's MPEG-4 AVC encoders, enables increased distribution capacity due to their bandwidth reduction capabilities and increased encoding/decoding efficiencies. For satellite applications, the RX1290 can include a DVB-S2 demodulator, allowing an additional 30% increase in channel capacity.

The Industry's most Versatile Decoder - a "Safe Choice" for the Future

The RX1290 decodes all major video formats in use today in both SD and HD resolutions, providing complete flexibility for daily operations. The professional decoder is a "safe choice" for companies that are beginning to transmit MPEG-4 AVC and HD but continue to work in MPEG-2 and SD. With the RX1290 they can migrate at their own pace.

Simplified Control and Lower Cost of Operations

Organizations with large populations of RX1290 receivers or other TANDBERG Television receivers can simplify control by integrating with TANDBERG Television's DirectorV5 control system. DirectorV5 provides remote, over-air, single-view control from a central location, reducing the need for on-site local operators.

Wide Range of Inputs and Outputs for Enhanced Connectivity

The RX1290 can be integrated into a variety of system architectures, including ASI, IP and RF delivery systems through a choice of input cards. The receiver offers a multitude of audio and video outputs for high quality delivery to all major onward networks.

BASE UNIT FEATURES

RX1290 – Multi-format Receiver (RX1290/BAS)

The following features are available as standard:

- MPEG-2, SD 4:2:0 decoding
- MPEG-2, SD, 4:2:2 decoding
- MPEG-2, HD, 4:2:0 decoding
- 3 x HD SDI, SD SDI or ASI outputs
- 1 x RGB or YPrPb analog video output
- 1 x ASI input
- 2 x balanced analog audio outputs
- 2 x balanced digital audio outputs
- 4 x unbalanced digital audio outputs
- Frame synchronization input
- RS-232 data output
- RS232/485 Control port
- Alarm relay
- BISS Mode 1 & E support
- Extensive VBI support

HARDWARE OPTIONS

Input Options

The RX1290 has a single ASI input as standard and can in addition be configured with a high performance DVB S2 demodulator.

DVB-S2 Input (RX1290/HWO/DVBS2)

- 4 x L-band inputs
- DVB-S QPSK demodulation
- DVB-S2 QPSK, 8PSK demodulation with license keys

DVB-S2 Input (RX1290/HWO/DVBS2/IF/CONST)

- Perfect for up-link monitoring
- 3 x L-band inputs
- 1 x IF input
- I/Q Constellation output
- DVB-S QPSK demodulation
- DVB-S2 QPSK, 8PSK demodulation with license keys

10/100BaseT Input (RX1290/HWO/IP/PROFEC)

- MPEG transport stream over IP
- 1 x 10/100BaseT input
- ProMPEG FEC with license key

100/1000BaseT Input (RX1290/HWO/IP/GIGE)

- MPEG transport stream over IP
- 2 x 100/1000BaseT input
- Very low latency
- ProMPEG FEC with license key
- (Check availability)

G.703 ATM Input (RX1290/HWO/G703)

- E3 or DS-3 inputs
- 34 or 45 Mbps rates

SOFTWARE OPTIONS

Input Options

DVB-S2 QPSK License (RX1290/SWO/DVBS2/QPSK)

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

DVB-S2 8PSK License (RX1290/SWO/DVBS2/8PSK)

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

DVB-S2 Low Symbol Rate License (RX1290/SWO/DVBS2/LSYM)

- Enables DVB-S2 symbol rate of 1 to 5 Msyms

ProMPEG FEC License (RX1290/SWO/IP/PROMPEG)

- Adds ProMPEG FEC capability to IP transport stream input options

Decoding Options

The RX1290 is designed to support a range of video decoding standards.

MPEG-4 AVC SD Decoding (RX1290/SWO/MPEG4/SD)

- Enables MPEG-4 AVC SD decoding

MPEG-4 AVC HD Decoding (RX1290/SWO/MPEG4/HD)

- Enables MPEG-4 AVC HD decoding
- Enables MPEG-4 AVC SD decoding
- Enables MPEG-2 4:2:2 HD decoding

MPEG-2 4:2:2 HD Decoding (RX1290/SWO/MPEG2/HD/422)

- Enables MPEG-2 4:2:2 HD decoding

Down-conversion (RX1290/SWO/DCONV)

- Down-conversion of HD to SD
- Simultaneous presentation of HD and SD on output interfaces

Low latency decode (RX1290/SWO/LDELAY)

- Low latency video decode
- 4:2:0 video decode modes only
- MPEG-1 Layer-II audio only

Conditional Access Options

The RX1290 supports many types of widely used conditional access systems to allow for secure transmission of content.

TANDBERG DirectorV5 (RX1290/SWO/DIR5)

- TANDBERG DirectorV5 CA
- TANDBERG DirectorV5 over-air control
- TANDBERG DirectorV5 over-air software downloads

DVB Common Interface (RX1290/SWO/CI)

- Enables support for Conditional Access modules
- Service pre-filtering

RAS 1 & 2 (RX1290/SWO/RAS)

- TANDBERG Television RAS transport stream CA protection

Provider Lock (RX1290/SWO/PROV/LOCK)

- Allows services listed by broadcaster ID to be displayed

Audio Options

Dolby Digital® Decode (RX1290/SWO/AC3)

- Enables decoding and pass-through of Dolby Digital® Audio
- 2 x 5.1 down-mix to 2.0 (stereo)
- 2 x 5.1 pass-through

AAC Audio Decode (RX1290SWO/AAC)

- AAC-LC audio when decoding MPEG-2
- HE-AAC audio when decoding MPEG-4
- 1 x 5.1 down-mix to 2.0 (stereo)
- 1 x 5.1 decode
- 2 x 2.0 decode
- 4 x 2.0 decode (with 4 x audio license)

4 x Audio Capability (RX1290/SWO/4AUD)

- Enables decode and pass-through of audio services 3 & 4

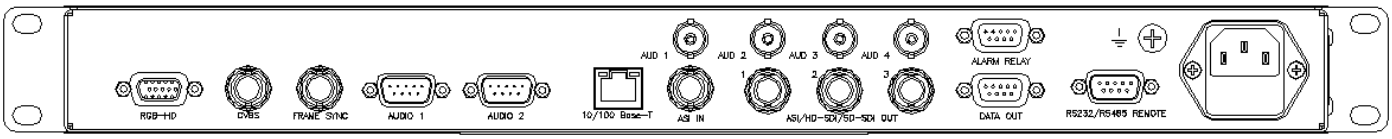
Other Software Options

Password Protection of Web Browser (RX1290/SWO/PW)

- Protects Web browser from malicious or accidental changes

RX1290 Multi-format SD/HD Integrated Receiver Decoder

SAMPLE CONFIGURATION



SPECIFICATIONS

Video and Audio Formats

MPEG-4 AVC (HD)[Ψ]

Profiles: MP@L4, HP@L4

Max. video rate: 20 Mbps

Video format: 1080i at 29.97, 30 & 25 fps 720p at 59.94, 60 & 50 fps

MPEG-4 AVC (SD)[Ψ]

Profiles: MP@L3

Max. video rate: 10 Mbps

Video format: 480i and 576i 29.97, 25 fps

MPEG-2 (HD)[Ψ]

Profiles: MP@HL, 422@HL[Ψ]

Max. video rate: 50 Mbps (MP@HL) 90 Mbps (422@HL)

Video format: 1080i at 29.97, 30 & 25 fps 720p at 59.94, 60 & 50 fps

MPEG-2 (SD)

Profiles: MP@ML, 422@ML

Max. video rate: 15 Mbps (MP@ML) 50 Mbps (422@ML)

Video format: 480i and 576i 29.97, 25 fps

Video Processing

Down-conversion[Ψ] (HD to SD): full frame, center cut out, letter box, anamorphic

Aspect ratio conversion: 16:9 to 4:3, 4:3 to 16:9

DVB subtitles burn-in (SD 4:2:0 modes only)

Audio Decoding

MPEG-1 Layer-II audio

Linear PCM

Dolby® Digital down-mix[Ψ]*

Dolby® Digital pass-through[Ψ]*

Dolby® E pass-through

DTS pass-through

AAC-LC, HE-AAC decode & down-mix[Ψ]*

Sampling rate: 48 kHz

No. stereo pairs: 2 or 4[Ψ]

[Ψ] License key dependent

*Limited number of decodes

Input Interfaces

Frame Synchronization

Connector: 1 x BNC (F) 75 Ohm

Input signal: Analog SD Hsync (black and burst)

DVB ASI-C

Connector: 1 x BNC (F) 75 Ohm

Max. input rate: 160 Mbps

Packet length: 188/204 byte packets

Standard: EN50083-9

MPEG over IP (option)

Connector: 1 x RJ 45

Format: 10/100BaseT

FEC: ProMPEG[Ψ]

Gigabit MPEG over IP (option)

Connector: 2 x RJ 45

Format: 100/1000BaseT

FEC: ProMPEG[Ψ]

DVB-S2 (Option)

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

Modulation: DVB-S QPSK, DVB-S2 QPSK[Ψ] and 8PSK[Ψ]

Frequency range: 950 to 2150 MHz

Input Level: -25 dBm to –65 dBm

Symbol Rate: 1 - 45 Msyms (DVB-S) 1[Ψ] - 31 Msyms (DVB-S2)

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

DVBS2/IF/CONST (Option)

L-band Inputs: 3 x F-Type (F), 75 Ohm

IF Monitor Input: 1 x IF BNC (F) 75 Ohm

IF Input Freq Range: 50 – 180 MHz (monitor input)

IF Input Level: -15 dBm to –40 dBm

Constellation Output: 2 x BNC I/Q (F) down-sampled

TTV G.703

Connector: BNC (F)

Network: G.703 compliant PDH

Input: E3 or DS-3 (selectable)

Bit-rates: 34 or 45 Mbps versions

Outputs

SDI/HD-SDI/DVB ASI-C (Switchable)

Connector: 3 x BNC 75 ohms

HD-SDI standard: SMPTE 292M

SD-SDI standard: SMPTE 259M

Embedded Audio: SMPTE 299M (HD) SMPTE 272M (SD)

Embedded Audio Channels: 2 or 4[Ψ] stereo pairs

ASI standard: EN50083-9

Video RGB-HD (SVGA)

Connector: 1 x 15 pin D-type

Format: RGB H&V/YPrPb (switchable)

CVBS

Connector: 1 x BNC 75 ohms

Format: PAL / NTSC

Audio

Connector: 2 x 9 pin D-type

Analog audio: 2 stereo pairs

Digital audio: 2 x balanced stereo pairs
4 x unbalanced stereo pairs - BNC (F) 75 Ohm

Data

RS-232 low speed data (Max. 38.4 kbps)

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 DirectorV5 (option)

DVB Common Interface (option)

RAS 1 & 2 (option)

BISS 1, E

Control Options

Front panel keypad and LCD

SNMP

Web browser

TANDBERG DirectorV5 remote control

Physical and Power

Dimensions (W x D x H)

440 x 400 x 44mm (17.2 x 15.75 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%

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