ERICSSON RX8330

Distribution Receiver

The RX8330 Distribution Receiver extends the RX8300 series of Integrated Receiver Decoders by providing feature-rich multi-format standard definition (SD) decoding capability with high quality SDI output for video distribution applications. The RX8330 gives the user access to the latest compression and transmission technologies to allow for the most cost-effective and bandwidth transmissions possible while ensuring the highest standards of reliability and video quality.

The RX8330 offers both ASI and the latest DVB-S2 capable satellite input interfaces. As security of content is always of paramount importance, compatibility with popular CA systems including DVB Common Interface is provided. The RX8330 shows its true class through its capability for multi-format decoding of all SD 4:2:0 video standards combined with high quality SDI digital video and analog video outputs. This capability is further enhanced by the RX8330's ability to receive, and down-convert HD video to SD providing an SD output for broadcast or monitoring. Additionally for systems that stay in the compressed domain, decrypted transport streams can be handed off into digital networks through a choice of both ASI or optional IP output interfaces.

The feature-rich specification of the RX8330 provides the capability and flexibility that places the receiver as the key link in the broadcast chain for applications from content distribution and turn-around to critical network monitoring.

PRODUCT OVERVIEW

The Perfect Choice for a Large Network

The RX8330 is the perfect receive device for distribution of video services throughout a large network. The RX8330 provides the most up-to-date feature-set, combining maximum transmission efficiency with easy remote management of the receiver population.

Increased Distribution Capacity and Efficiency

The RX8330 in combination with Ericsson's MPEG-4 AVC encoders and PREKOR™ Dynamic Pre-correction System leads to a highly efficient video distribution system. Combined with the additional 30 percent increase in channel capacity of DVB-S2 the RX8330 allows operators to achieve three times the amount of content through a transponder.

Multi-format Decoding - a "Safe Choice" for the Future

The RX8330 decodes all major SD video formats in use today providing complete flexibility for daily operations. The versatility that the RX8330 decoder provides makes it a "safe choice" for companies that are beginning to transmit MPEG-4 AVC SD but also continue to work in MPEG-2 SD. With the RX8330 they can migrate at their own pace.

Simplified Control and Lower Cost of Operations

Organizations with large populations of RX8330 receivers and other Ericsson receivers can simplify control by integrating with Director by Ericsson. Director provides remote, over-air, single-view control from a central location, reducing the need for on-site local operators.

BASE UNIT FEATURES

RX8330 – Distribution Receiver (RX8330/BAS)

The following features are available as standard:

- Four input DVB-S QPSK satellite demodulator
- Transport stream input with ASI connection
- Dual switchable ASI/SDI output
- DVB Common Interface CA support
- Director single service decryption
- Front panel and Web browser control, with alarm relay
- SCTE 35 controlled contact closures for ad-insertion signaling

Optional features include:

- DVB-S2 QPSK, 8PSK and 16APSK* demodulation
- DVB-S2 VCM mode support
- Transport stream over IP output
- Multi-service decryption via Pro CAMs
- Single service and multi-service BISS decryption
- MPEG-2 SD 4:2:0 video decoding
- MPEG-2 HD 4:2:0 down-conversion
- MPEG-4 AVC SD video decoding
- MPEG-4 AVC HD down-conversion
- Two stereo pair Dolby® Digital audio decoding with 5.1 to 2.0 down-mixing
- AAC audio decoding with 5.1 to 2.0 down-mixing
- MPE IP data de-encapsulation
- Single service filtering and PID remapping
- Multi-service filtering and stream splitting

HARDWARE OPTIONS

IP Transport Stream Output (RX83XX/HWO/IP/OUT)

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

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

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

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

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

SOFTWARE OPTIONS

Input Options

The RX8330 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 (RX83XX/SWO/DVBS2/QPSK)

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

DVB-S2 8PSK License (RX83XX/SWO/DVBS2/8PSK)

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

DVB-S2 16APSK License (RX83XX/SWO/DVBS2/16APSK)*

- Adds DVB-S2 QPSK, 8PSK and 16APSK capability to DVB-S2 input option card

DVB-S2 Low Symbol Rate License (RX83XX/SWO/DVBS2/LSYM)

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

DVB-S2 VCM mode License (RX83XX/SWO/DVBS2/VCM)*

- Provides DVB-S2 Variable Coding and Modulation support
- Single TS output

Null Packet Detection Redundancy Switching (RX83XX/SWO/NULL)

- Redundancy switching from primary to secondary input triggered by presence of null packets in the incoming stream
- User definable percentage of null packets to trigger redundancy switch

Decoding Options

The RX8330 is designed to support a range of video decoding standards

MPEG-2 SD Decoding (RX83XX/SWO/MPEG2/SD)

- Enables MPEG-2 SD 4:2:0 decoding

MPEG-2 HD Down-conversion (RX83XX/SWO/MPEG2/HD)

- Enables MPEG-2 SD and HD 4:2:0 decoding
- HD video is down-converted and presented as SD on CVBS output

MPEG-4 AVC SD Decoding (RX83XX/SWO/MP2/MP4/SD)

- Enables MPEG-2 and MPEG-4 AVC SD 4:2:0 video decoding

MPEG-4 AVC HD Down-conversion (RX83XX/SWO/MP2/MP4/SD/HD)

- Enables MPEG-2 SD and HD, MPEG-4 AVC SD and HD 4:2:0 decoding
- HD video is down-converted and presented as SD on CVBS output

Audio Options

Dolby® Digital Decode (RX83XX/SWO/AC3)

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

AAC Decode (RX83XX/SWO/AAC)

- Enables decoding of AAC-LC and HE-AAC
- 2x 2.0 (stereo) decoding
- 2x 5.1 down-mix to 2.0 (stereo)

Conditional Access Options

Multi-Service CAM Decryption (RX83XX/SWO/MSD)

- Decrypt multiple services via professional CAMs
- Simultaneously decrypt up to 10 services or 24 PIDs max

Director by Ericsson Multi-service Decryption (RX83XX/SWO/DIR5/MSD)

- Director multi-service decryption
- Director over-air control
- Director over-air software downloads

BISS CA (RX83XX/SWO/BISS)

- BISS Mode 1 and BISS Mode E descrambling

BISS Multi-service CA (RX83XX/SWO/BISS/MSD)

- Multi-service decryption for BISS
- Support for multiple BISS keys

Stream Processing Options

Single Service Filtering (RX83XX/SWO/SING/SERVFILT)

- Filter multiple services to output a single service
- Re-map PIDs for the outgoing service

Multi-Service Filtering (RX83XX/SWO/MULT/SERVFILT)

- Filter N multiple incoming services to M outgoing services
- Re-map PIDs for a single service
- CBR MPTS transport stream output
- Service splitting for multiple IP SPTS output

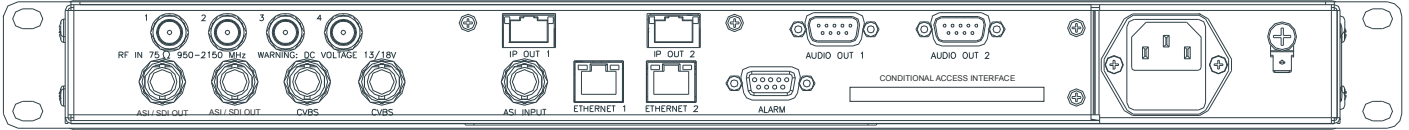### Data Options

High Speed Data Output (RX83XX/SWO/IP/DATA)

- MPE based data de-encapsulation of IP data
- Requires IP TS output option

Other Software Options

Password Protection of Web Browser (RX83XX/SWO/PW)

- Enables password protection feature on web browser control interface to protect from malicious or accidental changes

SAMPLE CONFIGURATION

SPECIFICATIONS

Video and Audio Options

MPEG-2 SD Decode[y]

Profiles: MP@ML

Max video rate: 15 Mbps (MP@ML)

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

MPEG-2 HD with Down-conversion[y]

Profiles: MP@HL

Max. video rate: 80 Mbps (MP@HL)

Video format: 1080i at 29.97 and 25 fps 720p at 59.94 and 50 fps

High definition video down-converted and presented as SD only

SD video format: 480i @ 29.97 or 576i @ 25, 50fps

MPEG-4 AVC SD Decode[y]

Profiles: MP@L3

Max. video rate: 12 Mbps

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

MPEG-4 AVC HD with Down-conversion[y]

Profiles: MP@L4, HP@L4

Max. video rate: 20 Mbps

Video format: 1080i @ 29.97 and 25 fps 720p @ 59.94 and 50 fps

High definition video down-converted and presented as SD only

SD video format: 480i @ 29.97fps or 576i @ 25, 50fps

Video Processing

Down-conversion (HD to SD)

Aspect ratio conversion (16:9 to 4:3): none, center cut out, letter box, anamorphic - manual/AFD controlled

VBI

Closed captions, DVB Subtitle burn-in

WST, Inverted Teletext, EBU Teletext subtitles and non subtitles, WSS, VITC, VITC in PES, VPS, VITS, NABTS, AMOL 48, AMOL 96, TV Guide, Video index, AFD pass-through, VANC data-piping, Service name in VANC

Audio Decoding

MPEG-1 Layer-II audio

Dolby® Digital 2.0 decoding[y]

Dolby Digital 5.1 down-mix to 2.0[y]

AAC 2.0 decoding[y]

AAC 5.1 down-mix to 2.0[y]

Decoded audio embedded in SDI

Sampling rate: 48 kHz

No. stereo pairs: two

Features

Program selection for ATSC, DVB and MPEG-only streams

Input transport rate up to 160 Mbps (Nominal)

One alarm relay

Two SCTE 35 controlled contact closures for add-insertion signaling

Service cycling through all decodable services

Input Interfaces

Transport Stream Input

Format: DVB ASI

Connector: 1x BNC 75 Ohm

Max input rate: 160 Mbps

Packet length: 188/204 byte packets

Standard: EN50083-9

Satellite Input

Connector: 4x F-Type, 75 Ohm

Modulation: DVB-S QPSK, DVB-S2 QPSK[y], 8PSK[y], 16APSK*[y], DVB-S2 VCM*[y]

Frequency range: 950 MHz to 2150 MHz

Input Level: -25 dBm to -65 dBm

Symbol Rate: 1 Msym/s to 45 Msym/s (DVB-S) 1[y](5) Msym/s to 31(60*) Msym/s (DVB-S2)

Bit-rate: 81 (155*) Mbps max. (DVB-S2)

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

FEC, DVB-S2 QPSK: (1/4, 1/3, 2/5*), 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

FEC, DVB-S2 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

DVB-S2 FEC Frame: Short Frames*, Normal Frames

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

Standard: EN300 421, EN302 307

Outputs

SDI/DVB ASI-C (Individually Switchable)

Connector: 2x BNC 75 Ohm

SDI Standard: SMPTE 259M

Embedded Audio: SMPTE 272M

ASI standard: EN50083-9

CVBS

Connector: 2x BNC 75 ohms

Format: NTSC, PAL

Audio

Connector: 2x 9-pin D-type

Analog audio: two balanced stereo pairs

Digital audio: two balanced stereo pairs

Decoded audio gain adjustment

Conditional Access

Director by Ericsson

Single service Director decryption

Multi-service decryption[y] - up to 24 services

DVB Common Interface

Single service decryption

Service pre-filtering

Multi-service decryption[y] - Single CAM, up to 10 services or 24 PIDs

BISS

BISS modes 1 and E

Single service Director decryption[y]

Multi-service decryption[y] - up to 24 services, (multiple keys*)

[y] Indicates an option, * Check availability

Stream Processing

Single Service filtering

Filter multiple services to one outgoing service[y]

Remap PIDs for the filtered service

Output: CBR on ASI and IP[y] SPTS

Multi-Service filtering

Filter N incoming services to M outgoing services[y]

Number of services: 24 max.

Remap PIDs on a single service

Output: CBR on ASI and IP[y] MPTS

Stream splitting - up to eight services as IP SPTS

Output Options

Transport Stream Output

Transport encapsulation into IP[y]

MPTS/IP/UDP

SPTS/IP/UDP with single service filtering - CBR mode

IP output VBR mode - Null packets dropped

2x Gigabit Ethernet outputs, 100/1000 auto-sensing

High Speed Data Output

MPE based data de-encapsulation[y]

Max. bit-rate: 100 Mbps

Control

Front panel keypad and LCD

Director remote control

Ethernet

Dual RJ45 10/100BaseT control interface

Full SNMP control, Web browser interface

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 VAC / 240 VAC

Power Consumption

45W max. (depending on options fitted)

Cooling

Integrated fans

Environmental Conditions

Operating Temperature

0°C to +50°C (32° to 122°F)

Storage Temperature

-20°C to +70°C (4° to 140°F)

Relative Humidity

5% to 95% (non-condensing)

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