



RX8200

Advanced Modular Receiver

Broadcasters' requirements for differing equipment configurations and the many and varied ways in which receivers are used is driving the need for a flexible receiver platform. The RX8200 Advanced Modular Receiver has been designed to precisely meet these requirements.

By allowing each individual RX8200 to be configured and tailored to the user's precise needs the perfect balance of functionality and cost can be achieved, resulting in a unit having only the required features without the additional expense of superfluous connectivity or functionality.

The RX8200 offers a vast and sophisticated array of configuration possibilities allowing it to cover a broad range of applications. The RX8200 can be tailored to standard definition or high definition uses with MPEG-2 or MPEG-4 decode technology whilst connectivity into the receiver is achieved with DVB-S2 satellite, IP and ASI options.

The high powered processing capabilities of the RX8200 enable the unit to be simply and easily upgraded in the field with additional software options to increment the functionality at any point after initial installation.

PRODUCT OVERVIEW

A New Receiver With an Unrivalled Pedigree

The RX8200 Advanced Modular Receiver is TANDBERG Television's fourth-phase receiver that builds on the success and knowledge of previous generations of products to ensure an unrivalled level of quality and reliability.

Increased Distribution Capacity and Efficiency

The RX8200 Advanced Modular Receiver, 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.

Wide Choice of Inputs and Outputs for Enhanced Connectivity

The RX8200 can be integrated into a variety of system architectures, including ASI, IP and satellite delivery systems through a choice of input and output modules. The receiver offers a multitude of IP, audio and video outputs for high quality delivery to all major onward networks.

Simplified Control and Lower Cost of Operations

Organizations with large populations of RX8200 Advanced Modular Receivers 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

RX8200 – Advanced Modular Receiver (RX8200/BAS)

The following features are available as standard:

- 1 x ASI input transport stream input
- Front panel control
- Web browser and SNMP remote control
- Alarm relay & SCTE 35 controlled contact closures for ad-insertion signaling
- Many sophisticated, additional hardware and software based modules available as options

HARDWARE OPTIONS

Input Options

The RX8200 has a single ASI input as standard and can in addition be configured with a choice of other inputs

DVB-S2 Capable Satellite Demodulator (RX8200/HWO/DVBS2)

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

100/1000BaseT Input (RX8200/HWO/IP/GIGE)*

- MPEG transport stream over IP
- 2 x 100/1000BaseT input
- Very low latency
- SMPTE 2022 ProMPEG FEC with license key

Decoding Options

The RX8200 provides some video decode options through hardware modules

MPEG-2 4:2:2 SD Decoding (RX8200/HWO/MP2/422)

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

Output Options

The RX8200 provides SD and HD video and audio output modules. Additionally the IRD can be fitted with an IP transport stream output.

IP Transport Stream Output (RX8200/HWO/IP/OUT)

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

SD Video and ASI Output (RX8200/HWO/SD)

- 2 x composite video outputs
- 2 x switchable ASI/SDI outputs

HD and SD Video and ASI Output (RX8200/HWO/HD)

- 1 x composite video output
- 1 x RGB/YPrPb analog video output
- 3 x switchable ASI/SDI/HD-SDI outputs

Balanced Audio Output (RX8200/HWO/BAL/AUD)

- 2 x stereo pairs of balanced analog and digital outputs
- Order QTY 2 for 4 x stereo pair capability

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

Frame Sync Input (RX8200/SWO/FSYNC)

- Synchronizes the IRD to the house black and burst reference

The RX8200 satellite input module 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

Decoding Options

The RX8200 is designed to support a range of video decoding standards. All decoding options require either the SD video output (RX8200/HWO/SD) or HD video output (RX8200/HWO/HD) card to be ordered.

MPEG-2 SD 4:2:0 Decoding (RX8200/SWO/MPEG2/SD)

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

MPEG-2 HD 4:2:0 Decoding (RX8200/SWO/MPEG2/HD)

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

MPEG-2 HD 4:2:2 Decoding (RX8200/SWO/MP2/HD/422)

- Enables MPEG-2 HD 4:2:2 decoding
- Requires MPEG-2 SD 4:2:2 decoding hardware option

MPEG-4 AVC SD 4:2:0 Decoding (RX8200/SWO/MP2/MP4/SD)

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

MPEG-4 AVC HD 4:2:0 Decoding (RX8200/SWO/MP2/MP4/SD/HD)

- Enables MPEG-2 SD & HD, MPEG-4 AVC SD & HD 4:2:0 decoding

Down-conversion (RX8200/SWO/DCONV)

- Down-conversion of HD to SD for SD only output units
- Simultaneous presentation of HD and SD on video output interfaces

Low latency decode (RX8200/SWO/LDELAY)

- Low latency video decode
- MPEG-1 Layer-II audio only

Conditional Access Options

The RX8200 supports many types of widely used conditional access systems to allow for secure transmission of content.

TANDBERG Director (RX8200/SWO/DIR)

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

DVB Common Interface (RX8200/SWO/CI)

- Enables support for Conditional Access modules

BISS CA (RX8200/SWO/BISS)*

- BISS Mode 1 and BISS Mode E descrambling

Audio Options

Capability for MPEG-1 Layer II audio is provided with any video decode license. Decoded audio will be embedded in (HD)SDI outputs and output via physical audio interfaces if ordered.

Dolby® Digital Decode (RX8200/SWO/AC3)

- Enables decoding or pass-through of Dolby® Digital Audio
- 2 x 5.1 decode and down-mix to 2.0 (stereo)
- 2 x 2.0/5.1 pass-through -compressed & embedded in (HD)SDI
- 4 x 2.0/5.1 pass-through -compressed & embedded in (HD)SDI*

4 x Audio Capability (RX8200/SWO/4AUD)

- Enables decode and pass-through of audio services 3 & 4
- Embeds 4 channels of audio into the (HD)SDI video output
- Requires QTY 2 audio output cards if physical audio interfaces are desired

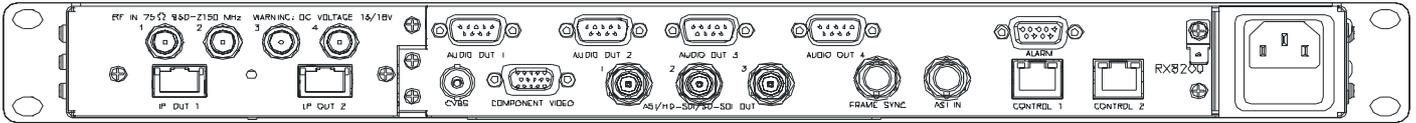
Other Software Options

Password Protection of Web Browser (RX8200/SWO/PW)

- Protects Web browser from malicious or accidental changes

*Check availability

SAMPLE CONFIGURATION



Sample configuration with: Satellite input, frame sync, HD video output, IP transport stream output and 2x Audio output modules installed

SPECIFICATIONS

Standard Features

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

Features

Program selection for ATSC, DVB and MPEG-only streams

1 alarm relay, 2 relays under SCTE35 control

Control

Front panel keypad and LCD

SNMP traps and alarms

Web browser

Hardware Options

Transport Stream Input Options

Satellite Input (RX8200/HWO/DVBS2)

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

Modulation: DVB-S QPSK

Standard: EN300 421

Frequency range: 950 to 2150 MHz

Input level: -25 dBm to -65 dBm

Symbol rate: 1 - 45 Msyms (DVB-S), 1^v(5) - 31 Msyms (DVB-S2)

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

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

Gigabit MPEG over IP input* (RX8200/HWO/GIGE)

Connector: 2 x RJ 45

Format: 100/1000BaseT

Video Options

MPEG-2 SD 4:2:2 (RX8200/HWO/MP2/4:2:2)

Profile: 422@ML

Max. video rate: 50 Mbps

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

SD Video Output (RX8200/HWO/SD)

Composite Video

Connector: 2x BNC (F) 75 Ohm

Format: PAL / NTSC

SDI/DVB ASI-C (Switchable)

Connector: 2 x BNC 75 ohms

SD-SDI standard: SMPTE 259M

Embedded Audio: SMPTE 272M (SD)

Embedded Audio Channels: 2 or 4^v stereo pairs

ASI standard: EN50083-9

HD and SD Video Output (RX8200/HWO/HD)

Composite Video

Connector: 1x BNC (F) 75 Ohm

Format: PAL / NTSC

Video RGB-HD (SVGA)

Connector: 1 x 15 pin D-type

Format: RGB H&V/YPrPb (switchable)

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^v stereo pairs

ASI standard: EN50083-9

Transport Stream Output Options

For ASI Output See HD and SD video output options

IP Output (RX8200/HWO/IP/OUT)

Transport encapsulation into IP

MPTS/IP/UDP

SPTS/IP/UDP with single service filtering - CBR mode^{v*}

2 x GigE outputs, 100/1000 autosensing

Audio Output Options

Balanced Audio Output (RX8200/HWO/BAL/AUD)

Connector: 2x 9 pin D-type

Analog audio: 2 balanced stereo pairs

Digital audio: 2 balanced stereo pairs

Order QTY 1 or (2 - requires RX8200/SWO/4AUD)

*Check availability

^vIndicates an additional option required

SPECIFICATIONS

**Software Options
Input Options**

**Frame Synchronization
(RX8200/SWO/FSYNC)**

Enables Frame Sync

Connector: 1 x BNC (F) 75 Ohm

Input signal: Analog SD Hsync (black and burst)

**DVB-S2 Satellite Input
(RX8200/SWO/DVBS2/QPSK)**

Modulation: DVB-S2 QPSK

Standard: EN302 307

Symbol rate: 5 - 31 Msym/s

Bit-rate: 81 Mbps Max

FEC: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

DVB-S2 FEC frame: Normal frames

**DVB-S2 Satellite Input
(RX8200/SWO/DVBS2/8PSK)**

Includes DVB-S2 QPSK functionality

Modulation: DVB-S2 8PSK

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

**DVB-S2 Low Symbol Rate
(RX8200/SWO/DVBS2/LSYM)[‡]**

Symbol rate - extended to 1 - 31 Msym/s

Applies to DVB-S2 modes only

Video Options

**MPEG-2 SD Decode
(RX8200/SWO/MPEG2/SD)**

Profiles: MP@ML

Max video rate: 15 Mbps (MP@ML)

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

**MPEG-2 HD Decode
(RX8200/SWO/MPEG2/HD)**

Includes MPEG-2 SD 4:2:0

Profiles: MP@HL

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

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

**MPEG-2 HD 4:2:2
(RX8200/SWO/MP2/HD/422)[‡]**

Profiles: 422@HL

Max. video rate: 90 Mbps

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

**MPEG-4 AVC SD Decode
(RX8200/SWO/MP2/MP4/SD)**

Includes MPEG-2 SD 4:2:0

Profiles: MP@L3

Max. video rate: 12 Mbps

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

**MPEG-4 AVC HD Decode
(RX8200/SWO/MP2/MP4/SD/HD)**

Includes MPEG-2 SD and HD 4:2:0

Includes MPEG-4 AVC SD

Profiles: MP@L4, HP@L4

Max. video rate: 25 Mbps

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

**VBI - with video decode options
4:2:0 decoding modes**

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

4:2:2 decoding modes

Closed Captions, VITC, VBI in PIX

Audio Options

Standard with any video decode option:

2 x MPEG-1 Layer-II audio decode

Dolby® E pass-through*

Linear PCM decode*

Audio sampling rate: 48 kHz

Dolby® Digital (RX8200/SWO/AC3)

2 x Dolby® Digital 5.1 decode and down-mix to 2.0

2 x Dolby® Digital 2.0/5.1 pass-through - compressed and embedded in (HD)SDI

**4 x Audio Capability
(RX8200/SWO/4AUD)**

4 x MPEG-1 Layer II audio decode*

4 x Dolby® Digital 2.0/5.1 pass-through - compressed and embedded in (HD)SDI[‡]*

Conditional Access Options

**TANDBERG Director
(RX8200/SWO/DIR5)**

Director single service decryption

Director over-air remote control

**DVB Common Interface
(RX8200/SWO/CI)**

Enables support for all major CAM modules

Single service decryption

BISS Decryption (RX8200/SWO/BISS)*

Decryption of BISS Mode 1 & E

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

100W 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, EN61000-3-2¹⁰, EN61000-3-3¹⁰, EN55024, CISPR22, FCC CFR47 Part 15B Class A

Safety Compliance

EN60950-1, IEC60950-1, UL60950-1

*Check availability

[‡]Indicates an additional option required

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