

## F8 !+%Contribution Class Super-Low Latency 10-Bit 1080P Receiver / Decoder



### Applications

- Sports Contribution
- 3D & UHD(4K) Contribution
- Fiber & IP Transport
- Teleport Infrastructure
- RF to IP Turn-Around with Service Filtering
- DSNG



Adtec Digital's RD-71 is a contribution class IRD supporting MPEG 2 and AVC (H.264), multi-chroma 4:2:0/4:2:2 and 10-bit. With support for super-low latency decoding, an array of IP transport capabilities and DVB-S2X demodulation, the RD-71 is versatile and reliable.

The RD-71 supports MPEG 1 Layer 2, AAC-LC, Dolby Digital, Dolby E and Linear PCM audio. The optional demodulator supports DVB-S, S2, and S2X with modes ranging from QPSK to 64APSK and multi-stream ISI support. Service filtering allows the RD-71 to operate in bandwidth constrained turn-around and redistribution applications.



- AVC (H.264), 4:2:2, 10-bit, 1080P Video Decoding
- MPEG 2, 4:2:2 Video Decoding
- Copper, Fiber SFP, and CVBS Video Outputs
- 1, 2, and 3 Frame End-to-End Latency
- MPEG 1 Layer 2, AAC-LC, and DD Audio Decoding
- Passthrough DD, Dolby E and LPCM
- DVB-S/S2/S2X, UDP, RTP, Zixi and ASI Transport
- Simultaneously Output SD/HD with Downscaling
- Service Filtering and IP Output for Turn-Around and Redistribution Applications

**Industry standard compliance and industry-wide interoperability make the RD-71 ideal for mission critical trunking, ad-hoc OB, DSNG and teleport applications.**

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## VIDEO DECODER PROFILES

### MPEG 2 HD/SD Profile:

ISO 13818-2 MP@ML, SP@ML, 422P@ML, MP@H14L, MP@HL, SP@H14L, SP@HL and 422P@HL

### MPEG 4 HD/SD Profile:

Baseline, Main, High and High422 (8-bit and 10-bit) up to Level 4.2

### Supported Resolutions:

480i59.94, 576i50, 720p50/59.94, 1080i50/59.94, 1080p50/59.94

## INPUTS

### Sync Input:

Auto-detects Bi-Level and Tri-level sync for Genlock, 3D and 4K applications  
Connector: 1 X BNC (75 Ohm)

### DVB-ASI Input:

Interface: ASI 188/204/208 Byte (EN 50083-9 up to 210 Mb/s)  
Connector: 1 X BNC (75 Ohm)

### IP Input:

UDP, RTP and SMPTE 2022-1 2007 FEC  
Supports 1 to 7 TS packets per IP packet  
IGMP v2 and v3 support  
Zixi Receiver and Link  
TS Rate: Up to 210 Mb/s  
Connector: 2 X RJ45  
Connector Speed: GigE  
(10/100/1000 Auto-Negotiate)

## AUDIO PROCESSING PROFILES

### Supported Audio:

Up to eight pairs (sixteen channels) of audio  
MPEG 1 Layer 2, AAC-LC (2.0/5.1) and AAC-6.0 surround sound decode  
Dolby Digital AC-3 stereo downmix and passthrough  
Dolby E and Linear PCM passthrough

**:: ALL OUTPUTS OPERATE CONCURRENTLY ::**

## 3G-SDI / HD-SDI / SD-SDI

### Standard:

SMPTE 424M - 3G  
SMPTE 292M - HD  
SMPTE 259M - SD

Two banks of SDI with independent downscale capable of simultaneous SD/HD output  
Connector: 3 X BNC (75 Ohm), 1 X SFP

## CVBS

### Standard:

SD NTSC, PAL-B/G, Composite Video Output  
Connector: 1 X BNC (75 Ohm)

## AES Audio

### Standard:

AES3/EBU Unbalanced  
Connector: 8 X BNC (75 Ohm)

## Analog Audio

Two balanced pairs via two DB9 connectors (One pair per DB9)  
Connector: 2 X DB9 (600 Ohm)

## VBI / VANC PROCESSING

### Waveform / Ancillary:

Closed Captioning (CEA-608/708)  
AFD (SMPTE 2016)  
OP-47  
Generic ANC (SMPTE 2038)  
Line 21 Captions (CEA-608)  
Teletext

## CONDITIONAL ACCESS

### Standard:

DVB Common Scrambling Algorithm Basic  
Interoperable Scrambling System (BISS)  
- Mode 0 Clear (Free To Air - FTA)  
- Mode 1  
- Mode E

## :: TRANSPORT OUTPUTS ::

## DVB-ASI OUTPUT

### Standard:

Asynchronous Serial Interface  
per EN 50083-9  
Connector: 3 X BNC (75 Ohm)

## IP OUTPUT

### Standard:

UDP  
RTP  
SMPTE 2022 FEC  
(Up to four IP destinations may be defined)  
Connector: 2 X RJ45

## SERVICE FILTERING

Up to five services per output can be defined to the ASI and IP Outputs

## PHYSICAL

### Operating Temperature (Ambient):

0C to 50C / 32F to 122F

### Storage Temperature (Ambient):

-30C to 80C / -22F to 176F

### Power:

Redundant auto switching dual  
100 - 240 VAC 50/60Hz

### Wattage:

(Startup/Operational)  
No Demodulator 35W/36W  
LB 35W/37W  
PRX 46W/46W

### Weight:

9 lbs. / 4.08kg, base version

### Measurements:

(H X W X D)  
1.75" X 19" X 18"  
44.45mm X 482.6mm X 457.2mm

## MANAGEMENT

Front Panel Control with Password Protection Capability  
Browser-based Web Interface with Advanced Security Features  
SNMP v2c Available for NMS Integration  
COM2 RS232 Serial Connectivity  
Telnet Connectivity  
FTP Connectivity

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### Hardware Packages

All hardware packages include SD, HD MPEG 2 (4:2:0 and 4:2:2), MPEG 4 (4:2:0 and 4:2:2), 10-bit/1080P decoding, BISS, FEC, four pairs of MP1L2 audio, Dolby E Passthrough, Genlock and VBI processing.

<b>RD71-PK2</b>	ASI and IP Decoder
<b>RD71-LB-PK2</b>	ASI and IP Decoder with DVB-S/S2 Demodulator with 8PSK capability up to 30Mbaud
<b>RD71-PRX-PK2</b>	ASI and IP Decoder with DVB-S/S2/S2X Demodulator with 8PSK capability up to 30Mbaud

### Software Options

All keys are field upgradable.

<b>AUD-EXT</b>	Enables the upper four stereo pairs (eight channels) of MP1L2.
<b>DOLBY-DEC</b>	Enables Dolby Digital audio decode. Supports four stereo pairs. Dolby 5.1 can be down-mixed to a stereo pair.
<b>AAC-AUD-DEC</b>	Enables AAC audio decode.
<b>AAC-6.0-AUD</b>	Enables AAC 6.0 audio decode.
<b>SVC-FLTR</b>	Enables service filtering demultiplexer. MPTS to SPTS or MPTS to program reduced MPTS via ASI and optional RF inputs.
<b>IP-OUT</b>	Enables four IP destinations that support UDP, RTP and SMPTE 2022 FEC. IP output data mirrors transport input selection.
<b>ZIXI-RX</b>	Enables Zixi Receiver edge point. Zixi Receiver can receive a stream from Zixi Broadcaster.
<b>ZIXI-LINK</b>	Enables Zixi Link when paired with the Adtec EN-200 or EN-31 encoder.

### BOTH LB & PRX OPTIONS:

LNB Power and Control:

0, 13, and 18 VDC @ 500mA 22kHz  
(band selection according to universal LNB for ASTRA satellites)

Also includes support for:

Multistream  
Physical Layer Scrambling (PLS)  
Gold Code

### DVB-S/S2 L-BAND DEMODULATOR

(LB OPTION)

DVB-S EN 300 421 and DVB-S2 EN 302 307  
Connector: 2 X F Type, Female  
Dual RF inputs capable of simultaneous lock

**Modulation Schemes:** QPSK / 8PSK / 16APSK / 32APSK  
**Roll-off:** 5%, 10%, 15%, 20%, 25%, 35%  
**DVB-S symbol rates:** 1 - 62Msym/s  
**DVB-S2 symbol rates:** 1 - 65Msym/s  
**Frequency Range:** 950 - 2150MHz  
**Input level:** -65dBm to -25dBm

### LB Demodulator Software Options

<b>LB-16APSK</b>	Enables up to 16APSK demod capability.
<b>LB-32APSK</b>	Enables up to 32APSK demod capability.
<b>LB-65M</b>	Increases the maximum symbol rate from 30 to 65 Msym/s.

### DVB-S/S2/S2X L-BAND DEMODULATOR

(PRX OPTION)

DVB-S EN 300 421, DVB-S2 EN 302 307-1  
DVB-S2X EN 302 307-2  
(A83-2 excluding VL-SNR)  
Connector: 4 X F Type, Female  
Quad RF inputs

**Modulation Schemes:** QPSK / 8PSK / 16APSK / 32APSK / 64APSK  
**Roll-off:** 5%, 10%, 15%, 20%, 25%, 35%  
**DVB-S symbol rates:** 1 - 45Msym/s  
**DVB-S2X symbol rates:** 1 - 60Msym/s  
**Frequency Range:** 950 - 2150MHz  
**Input level:** up to -25dBm

### PRX Demodulator Software Options

<b>PRX-16APSK</b>	Enables up to 16APSK demod capability.
<b>PRX-32APSK</b>	Enables up to 32APSK demod capability.
<b>PRX-54M</b>	Increases the maximum symbol rate from 36 to 54 Msym/s.
<b>PRX-60M</b>	Increases the maximum symbol rate from 36 to 60 Msym/s.
<b>PRX-S2X</b>	Enables DVB-S2X for 8PSK, 16APSK or 32APSK mod cods.
<b>PRX-64APSK/S2X</b>	Enables up to 64APSK and DVB-S2X demod capability.

