



## EN-200

### 1080P AVC Super-Low Latency Encoder

- Dedicated ASI, IP or RF Sports Contribution
- UHD(4K) Contribution
- At Home Production
- High-Efficiency Trunking at 1, 2, & 3 Frame Latency with Frame Accurate Sync

**Adtec Digital's EN-200 contribution class encoder supports the most demanding video applications with super-low latency, UHD(4K) and high definition synchronous AVC encoding.**

The EN-200 offers premium features and exceeds requirements in its power-efficient 1-RU chassis. Standard features include redundant power supplies and enhanced control and monitoring via front-panel, browser and SNMP.



Video support includes UHD(4K) and high definition synchronous AVC encoding. It can process up to sixteen audio channels with comprehensive compression options. The on-board L-Band and IF-Band modulator satisfies your DVB-CID requirements with premium DVB-S2X modes up to 256APSK.



- 3G-HD/SDI 1080p50/59.94 fps Encoding
- AVC (H.264) 4:2:0 /4:2:2 Video Encoding
- 3G-SDI via 3G Copper and Fiber SFP Video Interfaces
- MP1L2, DD, AAC-LC, HE-AAC (2.0 and 5.1)
- Passthrough DD, Dolby E, and LPCM
- End-to-End and Interoperable Solution
- 1, 2, and 3 Frame End-to-End Latency
- Simultaneous ASI, RF (DVB-S2X and DVB-CID), and IP Transport (SMPTE 2022 FEC, UDP, RTP, RTMP, Zixi)



**Offering super-low latency and frame accurate sync, Adtec's EN-200 is an integral part of UHD(4K) and At Home Production solutions.**

## 1080P AVC Super-Low Latency Encoder

### VIDEO ENCODER PROFILES

#### MPEG 4 /AVC HD/SD Profiles:

H.264 MPEG 4 SD  
(ITU-T H.264 ISO 14496-10)  
4:2:0 Chroma: High Profile, Level 3.0  
4:2:2 Chroma: High Profile, Level 3.0  
Data rates: 0.7 - 20Mb/s

H.264 MPEG 4 HD  
(ITU-T H.264 ISO 14496-10)  
420 Chroma: High Profile, Level 4.1  
422 Chroma: High Profile, Level 4.1  
Data Rates: 1.5 - 80Mb/s

#### Supported Resolutions:

480i59.94, 576i50 Level 3.0 to Level 3.2  
1080p50/59.94 ( Level 4.2 )  
1080i50/59.94, 720p50/59.94 ( Level 4.1 )

**:: ALL INPUTS OPERATE CONCURRENTLY::**

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

#### Standard:

SD - SMPTE 259M-C - 270Mbit/s with embedded audio per SMPTE 272M A, B, and C  
HD - SMPTE 292M - 1.485Gbit/s with embedded audio per SMPTE 299M  
3G-SDI Level A and Level B  
Connector: 1 X BNC (75 Ohm)

### SFP Input

#### Standard:

SD-SDI, HD-SDI, and 3G-SDI  
(3G-SDI Level A and Level B)  
Connector: Open SFP cage for SFP optical module

### CVBS Input

#### Standard:

SD NTSC or PAL D1 Composite Video  
Connector: 2 X BNC (75 Ohm)

### AUDIO PROCESSING PROFILES

#### Audio Encoding:

Up to eight pairs (sixteen channels) of audio  
MPEG 1 Layer 2, AAC-LC (2.0/5.1), AAC-HE  
v1/v2 and AAC-6.0 surround encode  
Dolby Digital AC-3 stereo  
(Up to 4 stereo pairs)

### Audio Passthrough:

Dolby E 5.1/2.0/1.0, AC-3, LPCM, Linear Acoustic

### Audio Inputs:

Digital audio input for uncompressed LPCM or compressed bit stream processing on AES or SDI

#### AES Audio

Standard: AES3  
Connector: 8 X BNC (75 Ohm)

#### SDI Embedded Audio

Standard: Digital audio embedded per SMPTE 272M (SD) and SMPTE 299M (HD)  
Connector: 1 X SFP module or 1 X BNC (75 Ohm)

Analog Balanced Stereo input via DB15 male connector. Clip level 18dB.  
Connector: DB15 (10k Ohm)

### CONDITIONAL ACCESS

#### Standard:

DVB Common Scrambling Algorithm Basic  
Interoperable Scrambling System (BISS)  
BISS 0/1/E

### VBI / VANC PROCESSING

#### Waveform / Ancillary:

Closed Captioning, AFD, OP47, Teletext, VITC and WSS  
CEA 608 -> 708 Up-Conversion

### DVB-ASI OUTPUT

#### Standard:

Asynchronous Serial Interface  
IS013818-1 MPEG 2 Transport Stream per EN 50083-9 (188 Byte Only)  
Connector: 3 X BNC (75 Ohm)

### IP OUTPUT

#### Standard:

Four (4) unique TCP, UDP, or RTP (RFC 3550) encapsulated routes with SMPTE 2022 (COP3 FEC).  
188 byte DVB packet size, 7 per IP packet

#### Output Rates: 1 - 150Mbps

MPEG 2 RTP v2 transport ( RFC 3550 )  
MPEG 2 UDP transport

#### Output Rates: 1 - 50Mbps

RTP SMPTE 2022-1 2007 FEC

#### Output Rates: 1 - 25Mbps

TCP Transport  
Zixi Feeder

Connector: 2x RJ45 10/100/1000 GigE

### PHYSICAL

#### Operating Temperature (Ambient):

-20C to 40C / -4F to 104F

#### Storage Temperature (Ambient):

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

#### Measurements:

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

#### Weight:

EN200 9 lbs. / 4.08kg.  
EN200/IF/LB/10M 14 lbs. / 6.35kg.

#### Power:

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

#### Wattage:

Start-up: 46 Watts  
Operational: 45 Watts

#### Non-condensing humidity:

30% to 85%

### 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



# EN-200

## 1080P AVC Super-Low Latency Encoder

### Hardware Models

All models include 1RU chassis, redundant AC power supplies, front panel, BISS, FEC, DolbyE Passthrough & VBI processing as standard features.

<b>EN200</b>	1080P AVC Super-Low Latency Encoder
<b>EN200/IF/LB/10M</b>	1080P AVC Super-Low Latency Encoder with DVB-S/S2/S2X modulator

### Software Options

All keys are field upgradable.

<b>M4-SD</b>	Enables SD MPEG 4 (4:2:0 & 4:2:2) video encode.
<b>M4-HD-420</b>	Enables HD MPEG 4 (4:2:0) video encode. Supports 1080p encode.
<b>M4-HD-422</b>	Enables HD MPEG 4 (4:2:2) video encode.
<b>MP1-AUD</b>	Enables MPEG 1 Layer 2 audio encode. Supports 8 pairs.
<b>DD-1-AUD</b>	Enables Dolby Digital (AC3) 2.0, 1.0, or 5.1 mode audio encode. Supports 2 pairs of Dolby Digital 2.0 or 1 pair Dolby Digital 5.1.
<b>DD-2-AUD</b>	Enables Dolby Digital (AC3) 2.0, 1.0, or 5.1 mode audio encode. Supports 2 pair of Dolby Digital 2.0 or 1 Dolby Digital 5.1.
<b>AAC-6.0 AUD</b>	Enables AAC 6.0 audio encode. Supports 2 AAC 6.0 sets for a total of 12 audio pairs.
<b>AAC-AUD</b>	Enables AAC audio encode. Includes HE-AAC v1/v2 & AAC-LC. Supports 4 pairs. Can also be configured for two sets of 5.1 surround encoding for up to 12 channels.
<b>REMUX</b>	Enables ASI input via BNC connector for encoder cascade multiplexing. Manual PID/Program number config. required.
<b>RTMP-TX</b>	Adds capability for RTMP formatted IP output. Can stream to content delivery networks or web-based services that accept RTMP formats.
<b>ZIXI-TX</b>	Adds capability for Zixi Feeder Edge Point. Zixi Feeder capable of streaming to Zixi Broadcaster, up to 20Mb/s w/o FEC and up to 15Mb/s w/FEC. Zixi Link feature available when paired with the RD-71 (RD71-ZIXI-LINK-KEY required).

### IF AND L-BAND MODULATOR

#### (EN-200/IF/LB/10M Model) - DVB-CID Compliant

Some specifications require purchase of feature keys. IF and L-Band outputs are not active simultaneously

#### Modulation Modes:

QPSK / 8PSK / 16APSK / 32APSK / 256APSK

#### Interface Rate:

50 kbit/s- 150 Mb/s  
(modcod & interface dependent)

#### Baudrate Range:

0.05 - 54 Mbaud (modcod dependent)

#### Clean Channel Technology - Roll-off factors:

5%, 10%, 15%, 20%, 25%, 35%  
for all modulations

#### IF Band Output:

Output level: -30 to +5dBm (+/- 2dB)  
Frequency: 50 - 180MHz  
Connector: 1 X BNC (50 Ohm)

#### L-Band Output:

Output level: -35 to +5dBm (+/- 2dB)  
Frequency: 950 - 2150MHz  
Connector: 1 X BNC (50 Ohm)

#### L-Band Monitor Output:

Output level: -45 dBm (+/- 5 dB)  
Frequency: Follows L-Band main output or fixed at 1050 MHz when IF output active.  
Connector: 1 X BNC (50 Ohm)

#### Reference Input:

Level: -3 to +7 dBm  
Frequency: 10 MHz  
Connector: BNC (50 Ohm)

### Modulator Software Options

<b>IF/LB/10M-8PSK</b>	Enables QPSK/8PSK with 5%-35% roll-off to 36 Mbaud.
<b>IF/LB/10M-16APSK</b>	Same as above, adds 16APSK.
<b>IF/LB/10M-32APSK</b>	Same as above, adds 32APSK.
<b>IF/LB/10M-256APSK/S2X</b>	Same as above, adds 256APSK, & DVB-S2X
<b>IF/LB/10M-S2X</b>	Adds DVB-S2X capability to 8PSK, 16APSK or 32APSK keyed unit.
<b>IF/LB/10M-54M</b>	Enables 54 Mbaud.
<b>IF/LB/10M-CID</b>	Enables RF Carrier ID information to be transported for vendor identification.

