

EN-20

Multi-CODEC 4:2:0 Dual Channel Encoder

Adtec Advantages

For over 28 years, Adtec has been delivering compression, ad-insertion and media playback platforms for broadcast, cable and AV professionals globally.

- ▶ *Excellence in technology*
- ▶ *Industry leading pre and post sales support*
- ▶ *24x7x365 SLA plans*
- ▶ *Deep broadcast expertise*
- ▶ *Global provider of compression solutions for major networks and events for over 7 years*

Adtec is committed to value, reliability, technology and relationships.

The EN 20 can be factory configured as a single or dual channel

encoder. Video modules are available for MPEG 2 (VE1) or MPEG 4 AVC (VE2). The chassis can be configured with either one or two of each video modules.

Audio encoding includes one stereo pair of MPEG 1 Layer 2 encoding (AAC-LC is available as a software option for the VE2 module*). Dolby Digital audio encoding requires both the hardware module (AE1) and software key (AE1-Dolby-Key).

Captions and ancillary data support includes analog CVBS input for waveform (608) and HDSDI interface using VANC or HANC** (708).

Transport from the EN20 is delivered precisely in accordance with MPEG, DVB or ATSC standards via the ASI and IP interfaces concurrently. The two independent services are internally multiplexed to the highest ETR-101 standards delivering excellent jitter and AV performance. The ASI output delivers both services as an MPTS and the IP output can be configured as either one multiplexed SPTS or two independent SPTS services.



ORDERING and CONFIGURATION

Applications

- ▶ **Distribution**
- ▶ **Basic Contribution**
- ▶ **Cable Systems**
- ▶ **OTT**

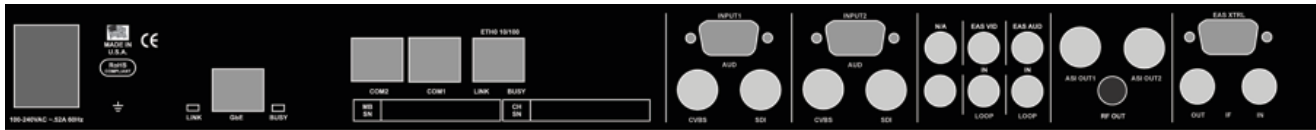
Features

- ▶ **4:2:0 MPEG 2 and MPEG 4 (AVC)**
- ▶ **HD and SD Video Encoding**
- ▶ **Stereo Audio**
(one pair per video service)
- ▶ **ASI and IP Interfaces**
- ▶ **Very Low PCR Jitter**
- ▶ **MPEG, ATSC and DVB Compliant**
- ▶ **Web, Front Panel and SNMP Control and Monitoring**

Benefits

- ▶ **Dual-channel Design**
- ▶ **Ease of Use**
- ▶ **Economical Pricing**
Delivering Exceptional Broadcast Quality
- ▶ **Excellent Service and Support (SLA)**

Part Number	Description		
EN20-02	Base Chassis: Dual channel capable High & Standard Definition Multi-CODEC 4:2:0 encoder chassis with SDI, CVBS inputs and ASI and IP outputs with UDP/RTP/SMPTE2022/TCP. Optional QAM Annex A/B RF output. ** Requires Purchase of Video Modules ** Requires Purchase of AE-01 Dolby Audio Module for Dolby AC3 2.0 encode per video service.		
EN20-VE1-01	Hardware Option: 1080i MP2 420 Video encode module. Includes (1) MPEG 2 video encode and (1) MPEG 1 Layer 2 audio encode.		
EN20-VE2-01	Hardware Option: Video module which includes (1) AVC video encode and (1) MPEG 1 Layer 2 audio encode.		
EN20-AE1-01	Hardware Option: Audio module which includes (2) Dolby encodes. (one per video encoder)		
EN20-AE1-Dolby Key	Software Option: Enables (2) Dolby encodes (one per video) or passes (2) Dolby audios (AC3 or 5.1) - License Key ** Requires purchase of EN20-AE1-01 Hardware Option.		
EN20-QM1-01	Hardware Option: QAM modulator / RF up-converter module includes QAM Annex A or B.		
Part Number	Summary Overview	Max	Required
EN20-02	Chassis ONLY, no video encoder (VEx) Modules required	NA	Yes
EN20-VE1-01	MPEG 2 Video Encoding Module with 1 Stereo MP1 Audio	2	For MP2 Yes
EN20-VE2-01	MPEG 4 Video Encoding Module with 1 Stereo MP1/ AACLC* Audio	2	For MP4 Yes
EN20-AE1-01	Dolby Audio Encoder Module	1	No
EN20-AE1-Dolby Key	Dolby Digital 2.0 Stereo Audio Key	1	No. Yes with AE1
EN20-QM1-01	QAM Annex A/B Module	1	For QAM Yes For ASI and IP No



Video CODECS

EN20-VE1-01 Encoder Video Profiles (MPEG2)

MPEG 2 SD: Adaptive Field Frame (AFF) ISO13818-2 MP@ML
MPEG 2 SD: AFF ISO13818-2 422P@ML
MPEG 2 HD: ISO13818-2 MP@HL (1920 x 1080 or 1280 x 720)

EN20-VE2-01 Encoder Video Profiles (MPEG4/H.264/AVC)

H.264 SD: Adaptive Field Frame (AFF) ISO14496-10 MP@L3.0
H.264 HD: ISO14496-10 MP@Level4.0 (1920 x 1080 or 1280 x 720)

Audio CODECS

VE1/VE2

MPEG 1 Layer 2 pair per VE module
AAC-LC**

AE1 (Optional hardware and key)

Dolby Digital 1.0/2.0 (two pairs)

Video Encoding Data Rates

(Automatic with QAM Option)

720 P: 12-23 Mb/s
1080i: 14-25 Mb/s
NTSC/PAL: 15Mb/s fixed (10Mb/s for H.264/MPEG4)
(HD rates are calculated based on video input resolution, video complexity and QAM target)

Video Inputs

Connector: BNC 75 Ohm
Interface: SD/HD-SDI Auto frame rate and resolution detection
SD-SDI (SMPTE 259M - 270 Mbit/s) with embedded audio per SMPTE 272M
HD-SDI (SMPTE 272M - 1.485 Gbit/s) with embedded audio per SMPTE 299M
Connector: BNC 75 Ohm
Interface: SD Composite (CVBS) Analog Composite NTSC and PAL

Audio Input

Connector/Interface: BNC/SDI and DB9/Analog
(single audio pair per video encoder)
Dolby Digital 2.0 (AC3) encode option
MPEG1 Layer 2 encode
Dolby E passthrough
Dolby Digital 2.0/5.1 (AC3) passthrough

Analog Digital/Captions/VANC

Waveform or Analog

Connector: RCA jack 75 Ohm Terminated Input
Closed Captions per CEA-608-C (2005)
Closed Captions per DVS-157,
Wide Screen Signaling (WSS) per ETSI EN300294 V1.4.1 (2003-04)
Teletext per ETSI EN 300 472 V1.3.1 (2003-05)
Waveform teletext not supported on SD-SDI

Ancillary (ANC) per SMPTE 291M

Connector: BNC 75 Ohm Terminated Input for HD/SD-SDI
Closed Captions per CEA-708
(SMPTE 291M), Teletext per OP47 and SMPTE 2031
VITC per SMPTE 2038, EBU Teletext/Subtitles
WSS/Teletext/NABTS/CEA-608/TV2GX/AMOL48/96
User Defined (2031-2007) per SMPTE 2031
AFD/Bar Data/Pan Scan per CEA-CEB16 (2006) per SMPTE 2016

Waveform Bridging and Conversion of User Data

Connector: BNC 75 Ohm Terminated Input
CEA 608 to CEA 708 up-conversion
Caption Bridging: CEA-608 via Composite merged with SD or HD Video via SDI (Similar frame rates required)
Teletext Bridging: Waveform Teletext via Composite merged with SD or HD Video via SDI
WSS Bridging: Waveform WSS via Composite merged with SD Video via SDI

Transport Stream User Data Carriage

SCTE 127-2007, ETSI EN 301 775, v1.2.1 (2003-05)

Emergency Alert System Input (EAS)

EAS Video

Connector: RCA jack 75 Ohm
Interface: Terminated NTSC or PAL D1 Composite Input with loop

EAS Audio

Connector: Vertical single RCA jack
Interface: Mono audio channel with loop

EAS Triggering Interface

GPI, Web UI, XCP

Transport Outputs

All outputs operate concurrently

ASI

Connector: BNC x2
ISO13818-1 MPEG 2 Transport Stream per EN 50083-9:1997
(188 byte only).
Physical interface 72 Mbit/s.

Transport Over IP (TSoIP)

Connector: RJ45 x1
ISO13818-1 MPEG 2 Transport Stream per EN 50083-9:1997
(188 byte only).
UDP or RTP encapsulated routes with SMPTE 2022 (COP3
FEC).
MPTS or SPTS user definable.

QAM (optional)

Connector: F-style RF female jack
Frequency: 50 to 862 Mhz
QAM Modulation Schemes supported:
Annex A (8 Mhz)
Annex B (6 Mhz)
QAM constellations:
Annex A: 64, 256
Annex B: 64, 256
Main Power: 45dBmV to 56dBmV, in 1 dBmV increments
MER: 38.0 dB minimum (average).
IF Output Connector: F-style RF female/jack
Frequency: Selectable 44 MHz (USA) and 36.125MHz
(Europe)

Physical

Operating Temp.: 0 to +50 °C/+32 to +122°F
Power Supply (nominal): 100 - 240 VAC
Power Consumption (nominal): 33.6 W (120V @ 280mA)
Weight: 6 lb (2.72 Kg)
Dimensions: (H X W X D) 1.73" X 19" X 13.32"
(44mm x 483mm x 338mm)

Configuration and Monitoring

Front Panel Configuration
Front LCD/LED Monitoring
Browser-based Web Interface
HTML 2/5
SNMP V2.0

Features and Specifications are subject to change.

About Adtec

Adtec Digital is a leading provider of hardware and software solutions for contribution, distribution, studio, commercial insertion and professional video playback applications. Adtec develops equipment and solutions for standard and high definition MPEG 2 and MPEG 4 AVC compression, multiplexing, decoding, ad insertion, playback and data management. With more than 28 years of industry experience, Adtec offers value, rock solid reliability, excellent support, and innovative technology that trends the industry and provides growth for customers.

Contact Adtec

www.adtecdigital.com

sales@adtecinc.com

[https://www.facebook.com/
AdtecDigital](https://www.facebook.com/AdtecDigital)

<http://twitter.com/AdtecDigital>

support@adtecinc.com

Domestic Sales +1 615-256-6619

International Sales +1 904-394-0389

Live EN20 demo.

en20.adtecdemo.tv

* VE2 AAC support is subject to silicon version and software availability.** See the specifications for details.

adtecdigital.com

4

