

Encoder HD/SD/1SEG, MPEG2/H.264



> ENC 333A

The ENC-333 is a high-definition system designed for real-time audio/video encoding for broadcast applications. This device is able to encode several HD and SD formats, providing high quality video, suitable for broadcast transmission. The video encoding technique, H.264 and MPEG-2, guarantees low output bit-rate with a flexible range that goes from 2 up to 25 Mbps. The audio stream is coded with high efficiency and quality, using: MPEG-1 Layer II, AAC-HE and AAC-LC or Dolby Digital Pro. ENC-333 encodes in SD or HD resolution the video input signal that it come from one of the inputs: SDI, HDMI, and Analog Video (Y, Cb, Cr), according to the coding standards, H.264 and MPEG-2. The ENC-333 includes not only video processing, but also stereo audio encoding in MPEG-1 Layer II (MP3), AAC HEv1, HEv2 and LC formats, Dolby Digital Professional. Video and audio elementary streams are multiplexed in an MPEG-2 Transport stream for output over an ASI link. A separate ASI input provides support for an external PSIP/SI data generator. Next to PAT and PMT, PSIP support includes MGT, TVCT and CVCT, while SI support includes NIT, SDT, CAT and TDT.

VIDEO SPECIFICATIONS	
Video Compression and Bit-rate (CBR/VBR)	MPEG-2 MP@ML 2 to 25 Mbps
	MPEG-2 MP@HL 4 to 25 Mbp
	MPEG-4 AVC MP@L3.0 0.5 to 25 Mbps
	MPEG-4 AVC HP@L4.1 4 to 25 Mbps
	MPEG-4 AVC BP@L1.2, L1.3 0.1 to 1 Mbps
Video Processing	LookAhead multi-pass processing
	Scene-cut, fade/dissolve and skin tone detection
	Dynamic GOP management with adaptive I-picture and B-picture placement
	Automatic input format (1080i/p, 720p) detection and switching (SDI only)
	Inverse telecine
Video Input Filtering	Motion compensated temporal filter (MCTF)
	Horizontal filter
	Input deblocking filter
Aspect Ratios	4:3 and 16:9
	AFD and WSS control
SD Resolutions and Frame Rates	576i@25, 480i@29.97 480i@30 x 720, 704, 640, 544, 528, 480, 352 pixels
HD Resolutions and Frame Rates	720p@23.97p, 24p, 25p, 29.97p, 30p, 50p, 59.94p 60p x 1280, 960, 640 pixels
	1080i@25, 29.97, 30 x 1920, 1440, 1280, 960 pixel
Multiscreen Resolutions and Frame Rates	1080p@23.97p, 24p, 25p, 29.97p, 30p x 1920, 1440, 1280, 960 pixel
	Built-in PIP (not enabled)
SD Resolutions Et frame Rates	416x240p@25, 29.97 Et 30
	352x288p@25
	320x240p@14.985, 15, 25, 29.97 Et 30
	320x180p@14.985, 15, 25, 29.97 Et 30
	176x144p@25
HD Resolutions Et frame Rates	576x720i/p@25
	480x720i/p@29.97 Et 30
	416x240p@25, 29.97 Et 30
	352x288p@25
	320x240p@14.985, 15, 25, 29.97 Et 30
	320x180p@14.985, 15, 25, 29.97 Et 30
	176x144p@25

Up	1080i@25 to 576i@25 (HD to SD)
Down	1080i@29.97 Et 30 to 480i@29.97 Et 30 (HD to SD)
Cross-Conversion	1080i/p@25 to 352x288p, 416x240p, 320x240p, 328x180p @25 (HD to LD)
	1080i/p@29.97 Et 30 to 416x240p, 320x240p, 328x180p @14.985, 29.97 Et 30 (HD to SD)
	576i@25 to 352x288p, 416x240p, 320x240p, 328x180p @25 (SD to LD)
	480i@29.97 Et 30 to 416x240p, 320x240p, 328x180p @14.985, 29.97 Et 30 (SD to LD)

ANCILLARY DATA SPECIFICATIONS	
Closed Captioning	EIA608B field 1, 2, 1Et2
	EIA708B
Ancillary Data and VBI	WSS, Video Index (SMPTE RP186), AFD/BAR data (SMPTE RP2016 1-3), AFS/BAR

AUDIO SPECIFICATIONS	
Standard Channels	1 x Stereo Pair (capable of up to 2 stereo pair in HD in version 3.0 and above)
Audio Formats	Consumer (AC3-CE, 2.0) native encoding
	Dolby Digital Surround (AC3 5.1), 2 x AAC (LC/HEV1/HEV2) Surround (5.1), 2 x MPEG1-LII, pass-trought
Operating Modes Mono, stereo	Mono, Stereo
Encoding Bit-Rate	MPEG1 Audio Layer II 192 to 384 kbps
	Dolby Digital (AC-3) 56 to 448 kbps
	AAC-LC 32 to 384 kbps
	AAC-HEV1 32 to 192 kbps
	AAC-HEV2 32 to 96 kbps



INPUTS AND OUTPUTS	
INPUT	
Video Inputs	1 x Serial Digital (SMPTE 259M SD-SDI, SMPTE 292M HD-SDI), 1 x Component (YUV), 1 x HD-MIv1.3, 1 x CVBS (PAL, NTSC)
Default Audio Inputs	2 x SDI embedded, 2 x AES/EBU (AES3 750hm), 2 x HDMI, spdif, 2 x Stere Balanced Analog Audio
OUTPUT	
ASI	ASI
	R Input: 750hm
	V Input: 800mVpp (500 to 1200 mVpp)
	Standard: CEI EN 50083-9 (Not active for Dolby Digital Audio)
ASI over IP	Standard: SMPTE 2022 (FEC included)

SYSTEM MANAGEMENT	
Control Management GbE	Standalone web user interface
	N° Inputs: 1 Connector: RJ45
	Standard: IEEE 802.3
RS-232	N° Inputs: 1 Connector: DE-9 female

ENVIRONMENTAL	
Cooling	8 fans, temperature controlled air flow front to right side
Operating Temperature	+32° to +122° F 0° to +50° C
Storage Temperature	-4° to +176° F -20° to +80° C
Operating Humidity	< 95% non-condensing
Electromagnetic Compliance	FCC Part 15 Class A CE Mark (EN 55022 Class A and EN 50082-1:1997)
Safety	UL 1950 and cUL C22.2#950 EN 60950 ROHS Directive 2002/95/EC

PHYSICAL	
Dimensions	(W x H x D) 19" x 1.75" x 27" (1-RU) 48.26 cm x 4.45 cm x 68.69 cm
Weight	8,81 lbs. / 4 kg