

AVC/H.264 & MPEG-2 Two In One Encoder



HVE9110 is H.264/AVC and MPEG-2 encoder which provides high quality and performance two outputs of H.264/AVC and MPEG-2 individually against one video source.

In addition, it supports One frame Super Low Latency at H.264/AVC encoding and the reliability is enhanced with the redundant power supply.

Key features

- Supports H.264/AVC and MPEG-2 HDTV/SDTV Encoding
- Low Latency Mode (Minimum Latency 1 Frame) (optional *10 *11) **
- Compressed Audio for Super Low Latency (optional *5) **
- Multiple Video Format Compatibility including
1080i, 1080p, 720p, 576i, 480i,
1080p50 (optional *3), 1080p59.94 (optional *3), 1080p60 (optional *3)
- Phase Aligned Audio
- Embedded Audio Features up to 8ch/4PES
 - MPEG-1 LayerII: Stereo x 4
 - MPEG-2 AAC/MPEG-4 AAC/HE-AAC: 5.1+Stereo
 - Multiple Audio Format Support up to 8ch/4PES Combinations
- Closed Caption: CEA-608, CEA-708, ARIB STD-B37
- Ancillary Data Transmission Support : Time Code, SMPTE RDD11, SMPTE2038, ARIB TR-B22, TR-B23, OP-47
- Supports Satellite Carrier ID
- Seamless Protection Switching with MVD5000, HVD9130 combination (*Decoder optional)
- Seamless Bit Rate Change **
- TS over IP Support with FEC
- Supports DHCP
- Easy Operation from Front Panel Display with Control Buttons as well as SNMP and WEB GUI via IP Network
- Supports BISS-1/E (optional *9)
- Quick Boot-up (23sec)
- Redundant Power Supply
- RoHS Compliant

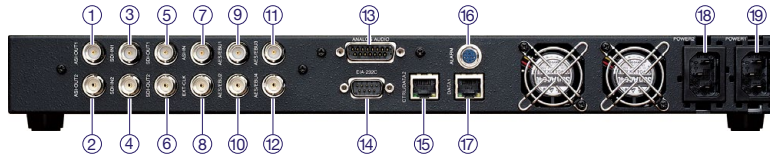
* Please refer to the option table on the reverse side of this brochure.
** Encoding at H.264/AVC only

Front Panel



- ① Power switch 1
- ② Power switch 2
- ③ Status LEDs
- ④ Display panel
- ⑤ Operation buttons

Rear Panel



- ① ASI-OUT1
- ② ASI-OUT2
- ③ SDI-IN1
- ④ SDI-IN2
- ⑤ SDI-OUT1
- ⑥ SDI-OUT2
- ⑦ ASI-IN
- ⑧ EXT-CLK
- ⑨ AES/EBU1
- ⑩ AES/EBU2
- ⑪ AES/EBU3
- ⑫ AES/EBU4
- ⑬ ANALOG AUDIO (optional)
- ⑭ EIA-232C
- ⑮ CTRL/DATA2
- ⑯ ALARM
- ⑰ DATA1
- ⑱ AC inlet 2
- ⑲ AC inlet 1 (optional)

Specifications

Supported Standards	System	ISO/IEC13818-1 (MPEG-2 SYSTEM TRANSPORT STREAM)		Ancillary Data	Data Type	TIMECODE, SMPTE334M, SMPTE2038, ATSC A/72 ARIB TR-B22, ARIB TR-B23, ARIB STD-B37 *7
	Video	ITU-T H.264 ISO/IEC 14496-10 AVC ISO/IEC13818-2 (MPEG-2 VIDEO)		Internal Test Signal	Video: Color Bar, Audio: 1kHz Sine wave	
Video Specifications	Audio	ISO/IEC11172-3 (MPEG-1 AUDIO LayerI) ISO/IEC13818-7 (MPEG-2 AAC LC Profile) ISO/IEC14496-3 part 4 (MPEG-4 AAC LC Profile *4) ISO/IEC14496-3 Amendment 1 (MPEG-4 HE-AAC v1) *4 ISO/IEC14496-5:2001 Amendment 24:2009 (MPEG-4 AAC-ELD) *5 SMPTE302M-2002		TS Specifications	Output Interface	IP *8: 100Base-TX/1000Base-T (RJ-45) x 2 lines (Category 5/5e/6) RTP/UDP/IP (SMPTE2022-2-2007/RFC2250, RFC3550), FEC (SMPTE2022-1-2007/Pro-MPEG COP#3 R2 method)
	Video Format (H.264)	1080I (1920/1440/1280/960x1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M 1080P (1920/1440/1280/960x1080) @23.98Hz, 24Hz: SMPTE274M *2 1080P (1920/1440/1280/960x1080) @29.97Hz, 30Hz: SMPTE274M *3 1080P (1920/1440/1280/960x1080) @50Hz, 59.94Hz, 60Hz: SMPTE274M *3 *4:2:0 only 720P (1280x720) @50Hz, 59.94Hz, 60Hz: SMPTE296M 480I (720/352x480) @29.97Hz: SMPTE125M 576I (720/352x576) @25Hz: ITU-R BT.656-4		External Clock Input	Max.160.000MHz (ARIB STD B-18 clock input compliant) BNC x 1 line (0.8Vp-p 75Ω)	
Audio Specifications	Video Format (MPEG-2)	1080I (1920/1440x1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M 1080P (1920/1440x1080) @23.98Hz, 24Hz: SMPTE274M *2 720P (1280x720) @50Hz, 59.94Hz, 60Hz: SMPTE296M 480I (720/352x480) @29.97Hz: SMPTE125M 576I (720/352x576) @25Hz: ITU-R BT.656-4 512I (720/352x480) @29.97Hz: SMPTE125M		Control Specifications	Stream Type	TS (188/204byte: No Reed-Solomon)
	Profile/Level	H.264/AVC	Profile: Main, High, High4:2:2 (8bit) Level: 4.2/4.1/4.0/3.2/3.0 Entropy: CABAC/CAVLC	Local Control	FL display (20 digits x 2) + operator switches (6 buttons)	
	Video Input	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)		Remote Control	LAN 100Base-TX/1000Base-T (RJ-45)	
	Video Through Output	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)		Maintenance I/O	LAN 100Base-TX/1000Base-T (RJ-45) (joint use with remote control)	
Audio Specifications	Profile/Level	MPEG-2	MP@HL, 422P@HL, MP@ML, 422P@ML	Alarm Output	Buzzer (volume adjustable), relay contact outputs (2 NO/NC contacts)	
	Video Input	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)		External Reset	System reset by relay contact input (1 NO contact)	
	Video Through Output	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)		Device Monitor Control	SNMPv1, WEB Based GUI	
	GOP Structure	M=1 to 3, N=1 to 30		TS encoding	BISS-1/E *9	
	Audio Input	AES/EBU (8ch) : BNC x 4 lines (1 Vp-p 75Ω) Embedded Audio (SDI1 8ch) : SMPTE299M, SMPTE272M Embedded Audio (SDI2 8ch) : SMPTE299M, SMPTE272M Analog (4ch) : D-SUB 15Pin (20KΩ, balanced) *1		Dimensions (mm)	44 (H) x 432 (W) x 460 (D) (w/o Connector, Foot, Rack mount bracket)	
	Encoding Channels	AES max. 8ch, Embedded max. 8ch, Analog max. 4ch *1 (Selectable for each stereo)		Weight (typical)	6kg	
	Encoding Method	MPEG-1 L2 (1ch (Mono), 2ch (DualMono), 2ch (Stereo)) max. 4PES MPEG-2 BC (1ch (Mono), 2ch (DualMono), 2ch (Stereo)) max. 4PES MPEG-2 AAC-LC (1ch (1/0), 2ch (1+1), 2ch (2/0), 4ch (4/0), 5.1ch (3/2/1), 6ch (6/0)) max. 2PES MPEG-4 AAC-LC (2ch (2/0), 5.1ch (3/2/1)) max. 2PES *4 MPEG-4 HE-AACv1 (2ch (2/0), 5.1ch (3/2/1)) max. 2PES *4 MPEG-4 AAC-ELD (2ch (2/0), 4ch (3/1), 5.1ch (3/2/1)) max. 2PES *5 SMPTE302M (2, 4, 6, 8 ch) max. 4PES		Power Source	AC100V to 240V, 50/60Hz	
	Sampling Frequency	48kHz		Power Consumption	75W max.	
	Sampling Bit	16bit (MPEG-1, MPEG-2 BC, MPEG-2/4 AAC, MPEG-4 HE-AAC, MPEG-4 AAC-ELD, Dolby Digital), 16/20bit (SMPTE302M)		Operating Environment	0 to 45°C, 30 to 90% (condensation not allowed)	
	Bitrate	128/192 kbps (MPEG-1, MPEG-2 BC 1ch) 128/192/256/384 kbps (MPEG-1, MPEG-2 BC 2ch) 128/192 kbps (MPEG-2 AAC-LC 1ch) 128/192/256/320/384 kbps (MPEG-2/4 AAC-LC 2 ch) 320/384/480/512/640 kbps (MPEG-2/4 AAC-LC 4ch, 5.1ch, 6ch) 64/96/128 kbps (MPEG-4 HE-AAC 2ch) *4 128/192/256 kbps (MPEG-4 HE-AAC 5.1ch) *4 128/192/256 kbps (MPEG-4 AAC-ELD 2ch) *5 256/384/512/640 kbps (MPEG-4 AAC-ELD 4ch, 5.1ch) *5		RoHS Compliant	This product is RoHS compliant	
Pass Through	Dolby E external encoder delay absorption function (0 to 2 frames)					
Audio ch Control	ARIB STD-B39 *6					

Option Table			
	Suffix	Option Name	Description
Hardware	*1	HE9_OP_AnalogAudio	Conversion level : +4dBm to -18dBFS, Saturation level : +20dBm
	*2	HE9_OP_23P24P	1080P24, 1080P23.98
Software	*3	HE9_OP_60P	1080P60, 1080P59.94, 1080P50, 1080P30, 1080P29.97
	*4	HE9_OP_HEAAC	HE-AAC, MPEG-4 AAC
	*5	HE9_OP_AACELD	MPEG-4 AAC-ELD
	*6	HE9_OP_B39	ARIB STD B39
	*7	HE9_OP_B37	ARIB STD B37
	*8	HE9_OP_GIP	TS over IP output
	*9	HE9_OP_BISS	BISS
	*10	HE9_OP_ULDELAY	Ultra low Latency Mode (Minimum Latency 1 frame) H.264/AVC Only
	*11	HE9_OP_SLDELAY	Super low Latency Mode (Minimum Latency 3 frames) H.264/AVC Only

Caution Please use our products in accordance with the instructions provided in the manual, user's guide or specifications attached.

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