

HVE9210/HVE9230

Embedded Audio Features up to 16 ch/8 PES and 1 Frame Super Low Latency



HVE9230 is enhanced H.264/AVC encoder which provides advanced features of 16 channels audio for 8 stereo, 5.1 ch. + stereo, or 8 PES or Ancillary Data transmission.

HVE9210/HVE9230 also provides One Frame Super Low Latency for high quality video transmission, Closed Captioning for IPTV or CATV transmissions.

Key features

- Supports H.264/AVC HDTV/SDTV Encoding
- Low Latency Mode (Minimum Latency 1 Frame) (optional *12 *13)
- 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 16 x ch/8 x PES (HVE9230)
 - MPEG-1 LayerII: Stereo x 8
 - MPEG-2 AAC/MPEG-4 AAC/HE-AAC : (5.1+Stereo) x 2
 - Multiple audio format support up to 16 x ch/8 x PES 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 (optional *10)
- Supports DHCP
- Supports DPI (Digital Program Insertion) (optional *14)
- Easy operation from front panel display with control buttons as well as SNMP and WEB GUI via IP Network
- Supports BISS-1/E (optional *11)
- Quick Boot-up (23sec)
- Redundant Power Supply
- RoHS Compliant

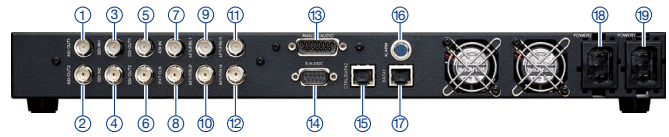
* Please refer to the option table on the reverse side of this brochure.

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

Specifications

 HVE9210 and HVE9230
 HVE9210
 HVE9230

Supported Standards	System	ISO/IEC13818-1 (MPEG-2 SYSTEM TRANSPORT STREAM)	
	Video	ITU-T H.264 ISO/IEC 14496-10 AVC	
	Audio	ISO/IEC11172-3 (MPEG-1 AUDIO LayerI)	
		ISO/IEC13818-7 (MPEG-2 AAC) LC Profile ISO/IEC14496-3 subpart 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 ATSC-A52B (Dolby Digital) * ⁶ * ⁷ SMPTE302M-2002	
Video Specifications	Video Format	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	
		Profile/Level	H.264/AVC
	Video Input	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)	
	Video Through Output	SMPTE424M/SMPTE292M/SMPTE259M BNC x 2 lines (0.8Vp-p 75Ω)	
	Video Input	M=1 to 3, N=1 to 30	
	Video Input	AES/EBU (8ch): BNC x 4 lines (1 Vp-p 75Ω) Embedded Audio (SDI1 16ch): SMPTE299M, SMPTE272M Embedded Audio (SDI2 16ch): SMPTE299M, SMPTE272M Analog (4ch): D-SUB 15Pin (20KΩ, balanced) * ¹	
Audio Specifications	Encoding Channels	AES max. 8ch, Embedded max. 16ch, Analog max. 4ch * ¹ (Selectable for each stereo)	
	Encoding Method (HVE9210)	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 * ⁴	
		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 Dolby Digital (1ch (Mono), 2ch (Stereo)) max. 4PES * ⁶ * ⁷ SMPTE302M (2, 4, 6, 8 ch) max. 4PES	
	Encoding Method (HVE9230)	MPEG-1 L2 (1ch (Mono), 2ch (DualMono), 2ch (Stereo)) max. 8PES MPEG-2 BC (1ch (Mono), 2ch (DualMono), 2ch (Stereo)) max. 8PES 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. 4PES	
		MPEG-4 AAC-LC (2ch (2/0), 5.1ch (3/2/1)) max. 4PES * ⁴ MPEG-4 HE-AACv1 (2ch (2/0), 5.1ch (3/2/1)) max. 4PES * ⁴ MPEG-4 AAC-ELD (2ch (2/0), 4ch (3/1), 5.1ch (3/2/1)) max. 4PES * ⁵ Dolby Digital (1ch (Mono), 2ch (Stereo)) max. 4PES * ⁶ * ⁷ SMPTE302M (2, 4, 6, 8 ch) max. 8PES	
	Audio Specifications	Sampling Frequency	48kHz
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)	
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 2ch) 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 64/80/96/112/128/160/192/224/256/320/384/448/640 kbps (Dolby Digital 1ch) * ⁶ * ⁷ 96/112/128/160/192/224/256/320/384/448/640 kbps (Dolby Digital 2ch) * ⁶ * ⁷	
		Pass Through	Dolby E external encoder delay absorption function (0 to 2 frames)
Audio ch Control		ARIB STD-B39 * ⁸	
Data Type		TIMECODE, SMPTE334M, SMPTE2038, ATSC A/72 ARIB TR-B22, ARIB TR-B23, ARIB STD-B37 * ⁹	
Internal Test Signal		Video: Color Bar, Audio: 1kHz Sine wave DVB-ASI: BNC x 2 lines (0.8Vp-p 75Ω)	
Output Interface		IP * ¹⁰ : 100Base-TX/1000Base-T (RJ-45) x 2 lines (Category 5/5e/6) RTP/JUDP/IP (SMPTE2022-2-2007/RFC2250, RFC3550), FEC (SMPTE2022-1-2007/Pro-MPEG COP#3 R2 method)	
External Clock Input		Max. 160.000MHz (ARIB STD B-18 clock input compliant) BNC x 1 line (0.8Vp-p 75Ω)	
Stream Type		TS (188/204byte): No Reed-Solomon	
Max. Multiplicity	Video 1, Audio max. 8, Ancillary Data max. 3, Total 12		
Maximum TS Rate	160.000Mbps (internal setting in 1 kbps units)		
Local Control	FL display (20 digits x 2) + operator switches (6 buttons)		
Remote Control	LAN 100Base-TX/1000Base-T (RJ-45)		
Maintenance I/O	LAN 100Base-TX/1000Base-T (RJ-45) (joint use with remote control)		
Alarm Output	Buzzer (volume adjustable), relay contact outputs (2 NO/NC contacts)		
External Reset	System reset by relay contact input (1 NO contact)		
Device Monitor Control	SNMPv1, WEB Based GUI		
TS encoding	BISS-1/E * ¹¹		
Dimensions (mm)	44 (H) x 432 (W) x 460 (D) (w/o Connector, Foot, Rack mount bracket)		
Weight (typical)	6kg		
Power Source	AC100V to 240V, 50/60Hz		
Power Consumption	HVE9210: 65W max./HVE9230: 70W max.		
Operating Environment	0 to 45°C, 30 to 90% (condensation not allowed)		
RoHS Compliant	This product is RoHS compliant		

Option Table

Hardware	Suffix	Option Name	Description
	*1	HE9_OP_AnalogAudio	Conversion level: +4dBm to -18dBFS, Saturation level: +20dBm
	*2	HE9_OP_23P24P	1080P24, 1080P23.98
	*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_Dolby D(ENC 2PES)	Dolby Digital 2ch x 2 (2PES)
	*7	HE9_OP_Dolby D(ENC 4PES)	Dolby Digital 2ch x 4 (4PES)
Software	*8	HE9_OP_B39	ARIB STD B39
	*9	HE9_OP_B37	ARIB STD B37
	*10	HE9_OP_GIP	TS over IP output
	*11	HE9_OP_BISS	BISS
	*12	HE9_OP_ULDELAY	Ultra low Latency Mode (Minimum Latency 1 frame)
	*13	HE9_OP_SLDELAY	Super low Latency Mode (Minimum Latency 3 frames)
	*14	HE9_OP_DPI	Digital Program Insertion

Caution

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

- Dolby is a trademark of Dolby Laboratories.
- Our company may change specifications and the appearance for improvement that are incidental to the product without providing prior notice. At the purchase and the use of the product, please confirm the latest information.
- Exporting our products or technologies may be subject to the Foreign Exchange and Foreign Trade Law of Japan and export control acts and regulations of other related countries.



NTT Electronics Corporation

Overseas Department, System Business Division Sales and Marketing Group
New Stage YOKOHAMA, 1-1-32 Shin-urashimacho, Kanagawa-ku,
Yokohama-shi, Kanagawa, 221-0031, Japan
TEL: +81-50-9000-6004 FAX: +81-45-453-9710 E-mail: sys-info-w@ntt-el.com
URL: <http://www.ntt-electronics.com/en/products/video/>