

# HVE 9210

## 1 Frame Super Low Latency Encoder with the High Efficiency Quality Mode



HVE9210 is AVC/H.264 encoder which provides advanced features of Ancillary Data transmission or High Efficiency Video Mode in addition to the features available on HVE9200.

HVE9210 supports One Frame Super Low Latency feature for transmission or contribution applications. HVE9210 can be also used for IPTV or CATV AVC/H.264 distribution taking advantage of Closed Captioning.

### Key features

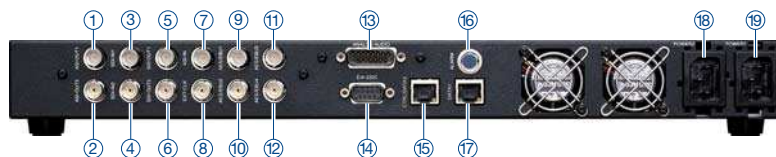
- Super Low Latency Mode (3 Frames, 1 Frame)(optional)
- Super Low Latency Mode with Audio Compression (optional)
- High Efficiency Mode (high picture quality at low bit rate) (optional)
- Multiple video format compatibility including 1080i, 1080/60p, 720p, 576i, 480i
- Embedded audio features up to 8 x ch/4 x PES
  - MPEG-1 LayerII: Stereo x 4
  - MPEG-2 AAC/MPEG-4 AAC/HE-AAC: 5.1+Stereo
  - Multiple audio format support up to 8 x ch/4 x PES combinations
- Closed Caption: EIA-608, EIA-708, ARIB STD-B37
- Ancillary Data Transmission Support: Time Code, SMPTE RDD11, SMPTE2038, ARIB STD-B40, OP-47
- Supports satellite Carrier ID
- 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)
- Quick Boot-up (15sec)
- Redundant Power Supply
- RoHS Compliant

## Front Panel



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

## Specifications

System		ISO/IEC13818-1 (MPEG-2 SYSTEM TRANSPORT STREAM)		Ancillary Data	Data Type	TIMECODE, SMPTE334M, SMPTE2038 *1, ATSC-A72 *1, OP-47 *1, ARIB STD-B40, ARIB STD-B37 *1
Supported Standards	Video	ISO/IEC14496-10(AVC/H.264)		Internal Test Signal	Video: Color Bar, Audio: 1kHz Sine wave	
	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 *1 ISO/IEC14496-3 Amendment 1(MPEG-4 HE-AAC v1) *1 ISO/IEC14496-5:2001 Amendment 24:2009 (MPEG-4 AAC-ELD) *1 *2 Dolby Digital *1 SMPTE302M-2002		TS Specifications	Output Interface	DVB-ASI: BNC x 2 lines (0.8Vp-p 75Ω) IP *1: 100Base-TX/1000Base-T (RJ-45) x 2 line (Category 5/5e/6) RTP/UDP/IP (RFC1889) FEC (Pro-MPEG COP#3 R2 method)
Video Specifications	Video Format	1080i (1920/1440x1080) @25Hz, 29.97Hz, 30Hz: SMPTE274M 1080p (1920/1440x1080) @24Hz, 23.98Hz: SMPTE274M *1 1080p (1920x1080) @60Hz, 59.94Hz: SMPTE424M *1 *2 *4:2:0 Only 720p (1280x720) @50Hz, 59.94Hz, 60Hz: SMPTE296M 480i (720x480) @29.97Hz: SMPTE125M 576i (720x576) @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)	
	Profile / Level	AVC/H.264	Profile: Main, High, High4:2:2(8bit) Level: 4.1/4.0/3.2/3.0 Entropy: CABAC/CAVLC	Stream Type	TS (188/204byte: No Reed-Solomon)	
	Video Input	SMPTE292M/SMPTE259M BNC x 2 lines(0.8Vp-p 75Ω)		Max. Multiplicity	Video: 1, Audio + Ancillary Data: max. 5, Total: 6	
	Video Through Output	SMPTE292M/SMPTE259M BNC x 2 lines(0.8Vp-p 75Ω)		Maximum TS Rate	160.000Mbps (internal setting in 1 kbps units)	
	Video Input	AVC/H.264	M=1 to 3, N=1 to 30	Local Control	Fluorescent display (20 digits x 2) + operator switches (6 buttons)	
	Video Input	MPEG-2	—	Remote Control	LAN 100Base-TX/1000Base-T (RJ-45)	
Audio Specifications	Audio Input	AES/EBU (8ch): BNC x 4 lines (1Vp-p 75Ω) Embedded Audio (SDI1 8ch): SMPTE299M, SMPTE272M Embedded Audio (SDI2 8ch): SMPTE299M, SMPTE272M Analog(4ch): D-SUB 15Pin(20KΩ, balanced) *3		Maintenance I/O	LAN 100Base-TX/1000Base-T (RJ-45) (joint use with remote control)	
	Encoding Channels	AES max. 8ch, Embedded max. 8ch, Analog max. 4ch *3 (Selectable for each stereo)		Alarm Output	Buzzer (volume adjustable), relay contact outputs (2 NO/NC contacts)	
	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 *1 MPEG-4 HE-AACv1 (2ch (2/0), 5.1ch (3/2/1)) max. 2PES *1 Dolby Digital (1ch (Mono), 2ch (Stereo)) max. 4PES *1 SMPTE302M (2, 4, 6, 8 ch) max. 4PES		External Reset	System reset by relay contact input (1 NO contact)	
	Sampling Frequency	48kHz		Device Monitor Control	SNMP, WEB Based GUI	
	Sampling Bit	16bit (MPEG-1, MPEG-2 BC, MPEG-2/4 AAC, MPEG-4 HE-AAC, Dolby Digital), 16/20bit (SMPTE302M)		TS encoding	BISS-1/E *1	
	Bitrate	128/192kbps (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) *1 128/192/256 kbps (MPEG-4 HE-AAC 5.1ch) *1 64/80/96/112/128/160/192/224/256/320/384/448/640 kbps (Dolby Digital 1ch) *1 96/112/128/160/192/224/256/320/384/448/640 kbps (Dolby Digital 2ch) *1		Dimensions	44mm (H) x 432mm (W) x 460mm (D) (excluding protrusions)	
	Pass Through	Dolby E external encoder delay absorption function (0 to 2 frames)		Weight (typical)	6kg or less	
				Power Source	100 to 240 VAC (50/60 Hz)	
				Power Consumption	60W or less	
				Operating Environment	0 to 45°C, 30 to 90% (condensation not allowed)	

\*1 "MPEG-4 AAC-LC", "MPEG-4 HE-AAC", "Dolby Digital", "Dolby Digital 4PES", "1080P@24Hz, 23.98Hz, 60Hz, 59.94Hz", "TS over IP", "BISS", and "Ancillary Data" functions are optional.  
\*2 "MPEG-4 AAC-ELD" and "1080p@60Hz, 59.94Hz" are planned to be supported in the future.  
\*3 The Analog Audio Input is optional.  
Conversion level: +4dBm to -18dBFS, Saturation level: +20dBm

**Caution**

- In order to ensure correct and safe use, be sure to read the User's manual before use.
- Do not install in locations exposed to water, humidity, steam, dust, or mist. Doing so could cause fire, electric shock, or equipment failure.

□ Features and specifications are subject to change without prior notice.  
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