



HDE-4S-QAM (MPEG-2 HD Encoder – 4xHD-SDI/4xComponent/Composite – 4xQAM) accepts up to four (4) high-definition (HD) programs from any of the following inputs: 4xHD-SDI, and 4xComponent/Composite. MPEG-2 encoded outputs are available in the following formats simultaneously: 4xQAM, 4xGigE (1000Base-T Ethernet), and 4xASI.

To improve transport efficiency, the encoder allows operator to (i) assign one (1) to four (4) programs to each QAM output channel, and (ii) to individually turn on/off each of the four (4) adjacent QAM output channels.

The encoder supports Dolby® Digital and Closed Captioning (EIA-608 and EIA-708). It is also equipped with an Emergency Alert System (EAS) interface. A front-panel RF test point allows for monitoring/testing of the QAM output without service interruption.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100BaseT Ethernet connection.

4xHD-SDI + 4xComponent/Composite



FEATURES

- Accepts up to four (4) programs from any of the following inputs: 4xHD-SDI, and 4xComponent/Composite
- Simultaneously delivers the following outputs: 4xQAM, 4xGigE, and 4xASI
- Multiplexes up to four (4) input programs in any of the following output combinations:
 - (i) 1:1 (1 program per QAM channel)
 - (ii) 2:1 (2 programs per QAM channel, not exceeding 38.8Mbps)
 - (iii) 3:1 (3 programs per QAM channel, not exceeding 38.8 Mbps)
 - (iv) 4:1 (4 programs per QAM channel, not exceeding 38.8 Mbps)
- Each of the four (4) QAM channels can (i) contain 1 or 2 programs, and (ii) be turned on/off individually
- Provides +52 dBmV QAM output level for four (4) combined channels (+60 dBmV for 1 QAM)
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Supports Closed Captioning EIA-608 and EIA-708
- Equipped with EAS interface (Analog Video + L/R Audio)
- Supports Real-time Dolby® Digital audio encoding
- Supports user-defined PSIP configuration

ORDERING INFORMATION

Model	Stock #	Description
HDE-4S-QAM	6374A	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent/Composite inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible

SPECIFICATIONS

INPUT

HD-SDI	Connectors: 4x BNC Standard: SMPTE 292M Video Resolution: 480i, 720p, & 1080i Audio: Embedded PCM and pass-through Dolby® Digital only
Component	Connectors: 4 sets each 3x RCA for Video (Y, Pb, Pr) Video Resolution: 480i, 720p, & 1080i Video Aspect Ratio: 4:3 & 16:9 Audio: 4 sets each 2x RCA for Analog Audio (L, R) 4 sets each 1x RCA for Digital Audio (PCM)
Composite	Connectors: 4 sets each 1x RCA for Video (Y) Video Resolution: 480i Audio: 4 sets each 2x RCA for Analog Audio (L, R) 4 sets each 1x RCA for Digital Audio (PCM)
EAS (Emergency Alert System)	Connectors: 3x RCA (Video, Audio L & R) Trigger Mechanism: 5-12 VDC & Dry Contact Closure (Terminal Strip)
Encoding Profile	
Video	Output Format: MPEG-2 HD MP@ML; ISO 13818-2 Chroma: 4:2:0 Resolution: 480i, 720p, & 1080i Frame rate: 29.97 fps (480i); 29.97 fps (1080i); 59.97 fps (720p) Aspect Ratio: 4:3 & 16:9 GOP Structure: I & P frames (user-selectable) Transport Rate: Variable (user-selectable) Video Rate: Variable (user-selectable) Video Pre-filter: Variable (user-selectable) Color Space: YCbCr and RGB
Audio	Output Format: Dolby® Digital Sampling rate: 48 kHz Bit rate: Variable; 96-448 Kbps (user-selectable)
Closed Captioning	HD-SDI: EIA-708; Embedded in HD-SDI input Component: EIA-608 Composite: EIA-608

OUTPUT

QAM	Connector: 1x "F" Female (rear panel; up to 4x RF QAM ch. combined) Modulation: QAM 16, 32, 64, 128, and 256 Standards: ITU-T J.83; Annex A and B DVB Symbol Rate: Variable; up to 7 MSymbol/sec (MBAud) Frequency Range: 54 to 1002 MHz Tuning: CATV Channel Selectable (Ch. 2 to 158) Channels' Bandwidth: 24 MHz (4x Adjacent 6 MHz) RF Level: +42 to +52 dBmV, 1 dB increment (4 ch. combined) +46 to +56 dBmV, 1 dB increment (2 ch. combined) ± 1 dB RF Level Accuracy: ± 0.5 kHz @ 77 °F (25 °C) Frequency Tolerance: ± 5 kHz over 32 to 122 °F (0 to 50 °C) Amplitude Flatness: ± 0.25 dB (over 6 MHz channel) Phase Noise: -98 dBc (@ 10 kHz) Spurious: -57 dBc Broadband Noise: -70 dBc (@ +52 dBmV output level, 5.5 MHz bandwidth) Impedance: 75 Ω Spectral Inversion: Auto Recognition Carrier Suppression: 45 dB Return Loss: 14 dB typical Signal-to-Noise Ratio (SNR): 40 dB typical MER: 40 dB typical I/Q Phase Error: Less than 1 degree I/Q Amplitude Imbalance: Less than 1%																		
ASI	Connectors: 4x BNC (Front-panel) Output Assignment: 4 output programs can be assigned as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>No. of SPTS</th> <th>No. of MPTS</th> <th>Connectors used (user-defined)</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>N/A</td> <td>1,2,3,4</td> </tr> <tr> <td>3</td> <td>N/A</td> <td>1,2,3</td> </tr> <tr> <td>2</td> <td>1 (2 progs.)</td> <td>1,2,3</td> </tr> <tr> <td>0</td> <td>2 (2 progs.)</td> <td>1,2</td> </tr> <tr> <td>0</td> <td>1 (4 progs.)</td> <td>1</td> </tr> </tbody> </table> Format: DVB-ASI Standard: ETSI EN 50083-9	No. of SPTS	No. of MPTS	Connectors used (user-defined)	4	N/A	1,2,3,4	3	N/A	1,2,3	2	1 (2 progs.)	1,2,3	0	2 (2 progs.)	1,2	0	1 (4 progs.)	1
No. of SPTS	No. of MPTS	Connectors used (user-defined)																	
4	N/A	1,2,3,4																	
3	N/A	1,2,3																	
2	1 (2 progs.)	1,2,3																	
0	2 (2 progs.)	1,2																	
0	1 (4 progs.)	1																	
GigE	Connector: 1x RJ45 (Front-panel) Standard: 1000Base-T Ethernet UDP/RTP: Supported (user-selectable) Address Assignment: 4x IPv4 addresses & port numbers (user-selectable)																		

GENERAL

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	115-230VAC, 60/50Hz (Fuse:3.0A, 250VDC, Slo Blo)
Power Dissipation:	60 W
Weight:	8 lbs (3.6 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

ALARMS/MONITORING/CONTROL

Local Monitoring:	8x Input Status LEDs (Video 1-4; Audio 1-4) 1x Encoder LED 1x Power LED 1x "F" Female RF Test Port
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via Web browser (1x RJ45 front-panel connector; 10/100Base-T)

RELATED PRODUCTS

Model	Description
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI + 2xComponent/Composite inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-CHV-QAM	MPEG-2 HD Encoder; 1xComponent/HDMI/VGA/Composite inputs; 1xQAM + 1xASI + 1xIP outputs
HDE-CSV-QAM	MPEG-2 HD Encoder; 1xComponent/HD-SDI/HDMI/VGA/Composite inputs; 1xQAM + 1xASI + 1xIP outputs
SDE-4AV-QAM	MPEG-2 SD Encoder; 4xAV inputs; 1xQAM + 1xASI + 1xGigE outputs; EAS compatible; 1RU