

MPEG-2 Encoder

Model D9022 Encoder

Description

The Model D9022 Encoder is designed to deliver high-quality MPEG-2 video.

The encoder includes two stereo audio encoders, with Layer II audio and an option for Dolby® Digital audio.

To address various different applications, the encoder supports two IP streaming outputs and three ASI outputs simultaneously. The IP output also supports DIFFSERV to facilitate quality of service management on an IP-based video transport.

Control of the encoder is supported via the front panel interface, an on-board web browser, and open communication protocol (SNMP). IPsec is provided for customers with high-security requirements, to help protect the management interface.

These features allow the D9022 Encoder to address a range of applications such as standalone encoding in cable headends, local and regional program insertion in DVB-T play-outs, and IP headends.



Features

- Web-based GUI and SNMP management interface for interfacing to third-party management systems to control the encoder
- 1 RU, low power consumption, stackable
- Adaptive comb-based composite video input
- Main profile @ Main level MPEG-2 video encoder, 0.5 to 15 Mbps
- Two audio stereo channels as either analog or digital audio input
- Closed caption support
- I, P, and B frames GOP support
- Contact closure alarm outputs
- ToS on IP output
- IPsec with shared keys

Options

- Internal Dolby Digital (AC-3) encoding
- SDI input with embedded audio
- Advanced VBI support
- BISS-E scrambling

Specifications Release 2.11

Video	
Standard Composite input	
Systems	PAL (B, D, G, H, I, and K) and NTSC M
Video level	0 dBV nominal
Frequency response	±0.65 dB; 0.5-5.0 MHz
Differential gain/phase	±4%; ±4°
Noise	< -55 dB rms weighted relative to 0.7 V
Impedance	75 Ω unbalanced
Return loss	> 35 dB, 10 Hz to 5.5 MHz
Connector	BNC
Aspect Ratio	4:3, 16:9
SDI Input	
Systems	525/29.97 Hz and 625/25 Hz, auto detection of the SDI input signal
Impedance	75 Ω unbalanced
Input level	800 mVpp nominal
Return loss	≥ 15 dB, 5 to 270 MHz
Connector	BNC
Bit rate	270 Mbit/s ± 10 ppm
Jitter acceptance	≥ 25% of a clock period
Aspect Ratio	4:3, 16:9 or auto-detect on VII or WSS
Active Format Descriptor (AFD)	Auto-detect on VII or WSS
Audio	
Inputs	Analog, digital AES-3id and embedded
Connector	BNC and terminal block
Number of channels	Two stereo pairs or four mono channels
Audio/Video synchronization	< -10 ms +30 ms with frame synchronizer
Analog Audio	
Impedance	600 Ω or >20 kΩ balanced
CMRR	>50 dB, 1 kHz
Clipping level	-6 to +24 dBu, 500 mdBu increments
AES-3id Digital Audio	
Impedance	75 Ω single-ended
Return loss	>15 dB, 0.1 to 6.0 MHz
Input level	0.5 to 2 Vpp nominal
Sample rate	32, 44.1 and 48 kHz
VBI Data Processing	
Closed captions on Composite	EIA 708; DVS 157; SA Type 4
ClearSight™ and SDI	
Transmission format	According to DVB-VBI standards
VBI formats	Teletext B, VPS and WSS, Transparent lines: Up to four lines per field. DVB and SA formats.
Embedded in SDI	EDH, sampled VBI (Teletext, VPS, WSS), VII, Closed Captions, Transparent lines: Up to four lines per field. DVB and SA formats.
Frame Synchronizer	
Reference input	BNC, 75 Ω. Black and burst.
Control	Internal or external reference
VBI	Only closed captions supported if enabled

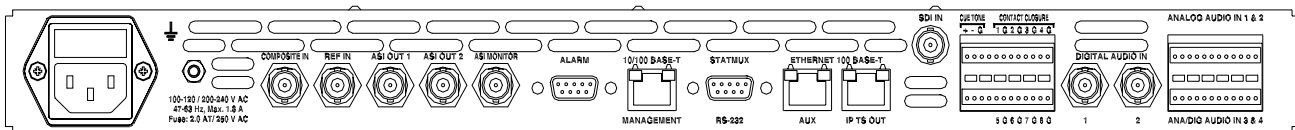
Specifications, continued Release 2.11

Video and Audio Processing	
Video	
Encoding	MPEG-2 MP@ML
Chroma format	4:2:0
Systems	625/25 Hz and 625/25 Hz
Encoding rate	0.5 to 15 Mbit/s for 4:2:0
H Resolutions	352, 480, 528, 544, 640, 704 and 720
V Resolutions	576 (for 625/25) and 480 (for 525/29.97)
Audio	
Encoding	MPEG-1 Layer II or Dolby Digital (AC-3)
Sample rates	32, 44.1 and 48 kHz (passthrough only 48 kHz)
Layer II encoding modes	Stereo, Joint Stereo, Dual Channel, Single Mono Up to four different PIDs
Layer II encoding rate	32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320 and 384 kbit/s
Dolby Digital (AC-3) encoding modes	1/0 Center, 2/0 Stereo, 1+1 Dual Mono for professional applications
Dolby Digital (AC-3) encoding rates	56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576 and 640 kbit/s
Dolby Digital (AC-3) passthrough bit rates	56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576 and 640 kbit/s
Transport Output	
DVB-ASI Output	
Number of outputs	Two + 1 monitor output (monitor cannot be muted)
Connector	BNC
Impedance	75 Ω
Return loss	≥ 15 dB, 27 to 270 MHz
TS rate	1 to 64 Mbit/s
TS packet length	188 bytes, 204 RS On, 204 RS Off
ASI bit rate	270 Mbit/s \pm 100 ppm
Output level	800 mVpp nominal
IP TS Output	
Number of outputs	2
Type	Eight-pin RJ-45, MDI
Ethernet Type	100 Base-T
Format	UDP/IP
IP address format	Multicast, unicast
TS bit rate	Follows the ASI output rate
TS packet length	188 bytes, 204 RS On, 204 RS Off
ToS	User configurable
Scrambling	
BISS-E	EBU Tech. 3292 rev.2 August 2002 Only supported on SDI versions
Modes	BISS 1 (Session Word) BISS-E (Clear Session Word) BISS-E (Injected ID and encrypted Session Word)
Transport stream output being scrambled	ASI
Monitor and Control	
Management interface	Ethernet 10/100 Base-T on RJ-45
Protocol	SNMP or WEB
Front panel	LCD character display with menu and input keys
Alarm relays	3 contact sets on 9-pin sub-D female
IPsec	Shared keys

Specifications, continued Release 2.11

Environmental	
Operation temperature range	0°C to +50°C (32°C to 122°F)
Storage temperature range	-20°C to +70°C (-4°C to 158°F). (-40°C/-40°F can be obtained for a limited period, maximum 20 hours due to the display).
Relative humidity	+50°C/122°F 95% Relative Humidity , IEC 60068-2-78 test: Cab
Altitude	70 to 106 kPa. ETS 300 019 part 1-3 stationary use, Class 3.2 and thus EN/IEC 60068-2-13, test M
Dimensions (W x H x D)	482 mm x 44.5 mm x 480 mm (19 in. x 1.75 in. x 18.9 in.)
Weight	7.7 kg / 17 lbs
Cooling	Forced cooling with air flow from front to back
Power Requirements	
AC Power	
Voltage range	100 V to 120 V AC or 200 V to 240 V AC ±10%
Line frequency	47 Hz to 63 Hz
Consumption	≤ 45 W fully equipped
DC Power	
Voltage range	-38 V to -58 V DC
Consumption	≤ 50 W fully equipped

D9022 Connector Panel, AC version



Ordering Information

Description	Part Number
D9022 with NTSC/PAL input and 2 stereo channels, LII and AC-3 passthrough support. AC supply. EU power cord.	401780300000005
D9022 with NTSC/PAL input and 2 stereo channels, LII and AC-3 passthrough support. AC supply. UK power cord.	40178030000000E
D9022 with NTSC/PAL input and 2 stereo channels, LII/AC-3 and AC-3 passthrough support. AC supply. NA power cord.	401780300000101
D9022 with NTSC/PAL input and 2 stereo channels, LII and AC-3 passthrough support. DC supply.	401780308000000
D9022 with NTSC/PAL input and 2 stereo channels, LII/AC-3 and AC-3 passthrough support. DC supply.	401780308000100
D9022 with NTSC/PAL/SDI input, VBI, 2 stereo channels, LII and AC-3 passthrough support. AC supply. EU power cord.	402102204010005
D9022 with NTSC/PAL/SDI input, VBI, 2 stereo channels, LII and AC-3 passthrough support. AC supply. UK power cord.	40210220401000E
D9022 with NTSC/PAL/SDI input, VBI, 2 stereo channels, LII/AC-3 and AC-3 passthrough support. AC supply. NA power cord.	402102204010101
ROSA [®] driver	70016040



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