

HIGHLIGHTS

- Advanced MPEG-2 MP@ML video compression
- Up to 4 channels per chassis
- MPEG-2 TS over IP output
- Multi-pass LookAhead CBR or VBR encoding
- Statmux over IP in LAN and WAN environments with DiviTrackIP™
- ENRGY integrated noise reduction with Motion Compensated Temporal Filtering
- High quality integrated decoding with FLEX technology option™
- Supports SCTE104 DPI triggering
- Analog and digital audio/video inputs
- Up to ten stereo or twenty mono audio channels
- Advanced audio: HE-AAC 2.0/5.1 encoding, Dolby E to AC-3 transcoding



The ability to deliver multiple services to a variety of devices—including television sets, PCs and mobile devices— is becoming a necessity in order to provide viewers with a richer experience. At the same time, the architecture must be cost-effective, reliable and highly efficient. Harmonic’s Electra® 5000 encoder is the world’s most advanced MPEG-2 standard definition (SD) encoding platform, designed to address this ever-increasing demand for more video and audio services.

The Electra 5000’s advanced encoding architecture enables operators to deliver within a given bandwidth, without compromising video quality. The Electra 5000 is ideal for operators who want to increase revenue per program and customer satisfaction. The system also enables service providers to roll out more MPEG-2 channels with no disruption of service.

With its standard IP interfaces, the Electra 5000 can be easily incorporated in Harmonic’s DiviTrackIP™ closed-loop statistical multiplexing solution. DiviTrackIP provides significant operational advantages and cost benefits by connecting encoders and multiplexers via a switched IP network rather than port-to-port ASI interconnects. As a result, any encoder anywhere in the network can efficiently be part of any multiplex, essentially creating a “virtual headend.”

Backed by Harmonic’s track record of innovation, system interoperability and exceptional support, the Electra 5000 is the most advanced MPEG-2 encoding platform for IPTV, satellite, cable or terrestrial applications available today.

BENEFITS OF THE ELECTRA 5000

- **Flexibility** – By offering up to four SD channels operators can provide multiple, feature-rich services.
- **Outstanding performance** – The 1-RU Electra 5000 achieves the best possible video quality at the lowest bit-rates by combining state-of-the-art ENRGY™ integrated noise reduction and pre-processing with an extremely powerful and flexible compression engine.
- **Support for all-IP infrastructure** – The Electra platform’s native IP interface seamlessly integrates into scalable, low-cost IP networks.
- **Network management** – Harmonic’s NMX Digital Service Manager™ simplifies mass configuring, monitoring and automated redundancy in both centralized and distributed architectures.



VIDEO SPECIFICATIONS

Video Compression	MPEG-2 MP@ML
Video Processing	LookAhead multi-pass processing
Video Input Filtering	Impulse noise reduction Motion compensated temporal filter Edge adaptive texture filter Non-linear spatial filter Noise level estimation
Aspect Ratios	4:3 and 16:9
Vertical Resolutions	576 (PAL), 480 (NTSC)
Horizontal Resolutions	720, 704, 640, 544, 528, 480, 352
Low Resolution	96x96, 192x192
MPEG-2 Encoding Bit-Rate	0.3 to 15 Mbps (4:2:0 VBR) 0.3 to 15 Mbps (4:2:0 CBR)
VBI Support	WINK, NABTS, WST (Teletext), Inverted WST, WSS, VPS, AFD, VITC, AMOL
Closed Captioning	EIA-608 Line 21 (fields 1 and 2) per EIA-708 ATSC A/53, ATSC CS-TSG-659-2, SCTE 20 (formerly DVS/157), ITU-R B0.1294
Digital Program Insertion (DPI)	SCTE35 insertion via SCTE104 triggers

AUDIO SPECIFICATIONS

Audio Formats	MPEG Layer II, Dolby Digital (AC-3), AAC, aacPlus
Analog Digitizing Resolution	24 bits
Analog Input-Level Adjustments	-18 to +4 dBu dBu in .5 dBu steps to place alignment tone at reference level at -20 dBFS
Operating Modes	Mono, dual channel, stereo, joint stereo
Encoding Bit-Rate	MPEG Audio Layer II: 56 to 384 kbps Dolby Digital (AC-3): 56 to 448 kbps AAC: 32 to 384 kbps aacPlus: 32 to 128 kbps
Sampling Frequencies	32 kHz, 44.1 kHz, 48 kHz
THD + Noise	< 0.05% at 1 kHz with 48 kHz sampling
Frequency Response at 384 kbps /48 kHz	< 3 dB 20 Hz to 20 kHz

INPUTS AND OUTPUTS

Video Inputs	Up to 4 channels analog composite or serial digital component PAL or NTSC
Audio Inputs	2 to 10 stereo pairs Digital (AES3/EBU or S/PDIF) Analog (balanced/unbalanced)
Video and Audio Outputs	MPEG-2 transport stream over UDP/IP (redundant 100/1000 BaseT connectors) ProMPEG FEC ¹ IGMP V3

SYSTEM MANAGEMENT

NMX Digital Service Manager
Web-based GUI

POWER

Input Voltage Range	85-132 VAC or 170-264 VAC 42-60 VDC
Line Frequency	47-63 Hz
Typical Consumption	100 W per channel

ENVIRONMENTAL

Cooling	9 fans; air flow front to side
Operating Temperature Range	0° to +50° C +32° to +122° F
Storage Temperature Range	-20° to +80° C -4° to +176° F
Operating Humidity	< 95% non-condensing
Electromagnetic Compliance	FCC Part 15 Class A CE Mark (EN 55022 Class A and EN 50082-1:1997)
Safety	UL 1950 and cUL C22.2#950 EN 60950 ROHS 2002/95/EC

PHYSICAL

Dimensions (W x H x D)	19" x 1.75" x 24" 48.26 cm x 4.45 cm x 60.69 cm
Weight	24 lbs. / 11 kg

HARDWARE OPTIONS

8-VSB Receiver
FLEX™ Video/Audio Decoding
GBE Transport Input
ASI Transport Input
AHC-RAC Multi-channel Audio
AHC-561 Audio Transcoding from Dolby E
ASI Output

Notes:

1. Optimal firmware license.

