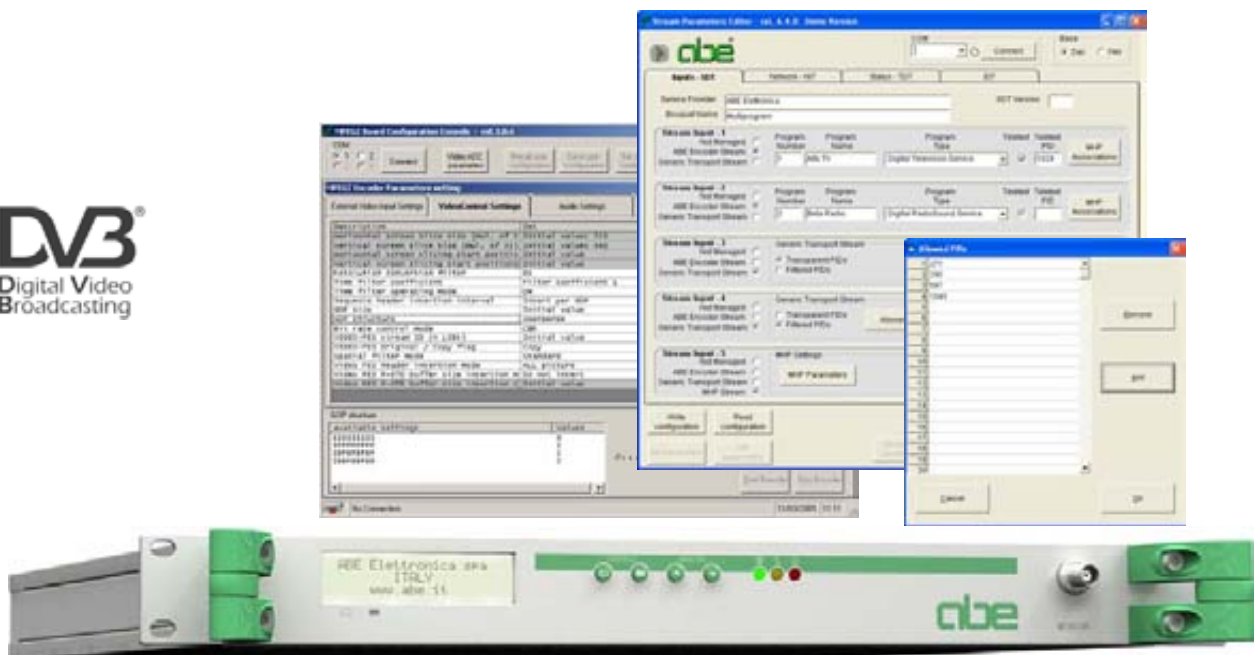


## MPEG-4 (H.264) SD/HD - MPEG-2 ENCODERS + MULTIPLEXER - REMULTIPLEXER

The high quality, professional and cost-effective solution

**DVB**  
Digital Video  
Broadcasting



The “**EMX 4000 series**” is a high quality, professional, flexible and really cost-effective solution that combines one or more high performances MPEG-2 and/or MPEG-4 (H.264/AVC SD/HD) Encoder, and a Multiplexer/Remultiplexer.

### Applications

- Digital TV Terrestrial Broadcasting
- Digital Satellite Uplinks for Distribution and Contribution
- DSNG Mobile news gathering
- Digital Microwave Links (Mobile and STL)

### Features

- 1 to 4 real time MPEG video/dual audio Encoders
- MPEG-4 H.264/AVC Encoder from SD (Standard Definition) to full HD (High Definition) High Profile @ Level 4.0 (with Down-scaler embedded)
- Encoding bit rate: from less than 2Mbit/s up to 24Mbit/s

- Audio encoding: MPEG-1 Audio Layer 2 (AAC encoding option under development)
- Inputs: SDI / HD-SDI with embedded or separate AES - EBU audio; analog SD Video and Audio
- MPEG-2 Encoder MP@ML 4:2:0 Up to full D1 encoding resolution with up to 720 horizontal pixels
- User configurable Encoders settings (GOP size and structure, resolution, filters, bit rate, ...) + easy to recall pre-defined factory settings
- Teletext or Closed Captioning extraction from video input and reinsertion in the Transport Stream;
- ASI and Ethernet (GBE - Video over IP) output and input interface options
- User-friendly local control with front panel LCD display and keypad
- RS485; RS232; Ethernet 10/100 Base-T (SNMP and web server support) remote control interface options
- Stand-Alone unit 1U high.

## MPEG-4 (H.264/AVC) Encoder

### VIDEO INPUTS

|                               |   |
|-------------------------------|---|
| Video input format:           | Digital SDI / HD-SDI with embedded or separate AES - EBU audio;<br>Analog (Standard Definition only) composite PAL / SECAM / NTSC |
| Digital video input:          | SDI / HD-SDI - 75Ω / BNC socket   |
| Analog Composite video input: | 1Vp-p / 75Ω / BNC socket  |

### VIDEO ENCODING

|                        |   |
|------------------------|---|
| Standard:              | ISO/IEC 14496-10 (H.264/AVC) Main Profile Level 3.0 and High Profile Level 4.0                                      |
| Bit rate:              | From less than 2Mbit/s up to 24Mbit/s   |
| Supported resolutions: | 1920 x 1080 x 60i/50i/24p, 1440 x 1080 x 60i/50i/24p, 1280 x 720 x 60p/50p/24p,<br>720 x 480 x 60i, 720 x 576 x 50i |
| Down scaler:           | Embedded  |
| Picture encoding type: | I, P, B   |
| Minimum latency:       | According to settings (GOP structure, bit rate etc.) – from around 500mS  |

### AUDIO INPUTS AND ENCODING

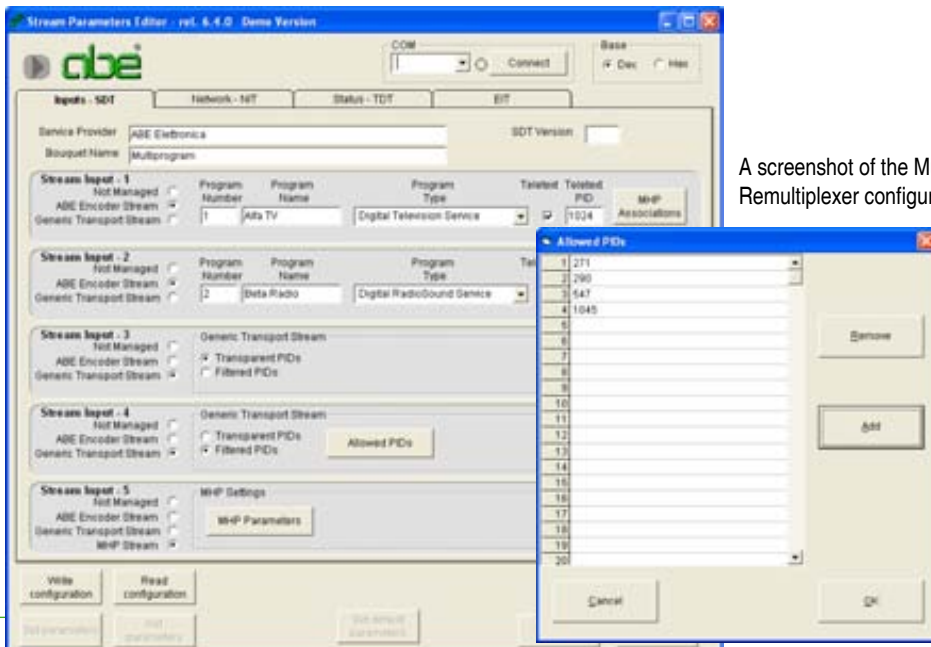
|                      |  |
|----------------------|--|
| Audio input format:  | Analog: Two channels (one pair) - mono, stereo, dual, joint stereo<br>Digital SDI/HD-SDI with embedded audio or with AES/EBU audio input |
| Analog audio inputs: | 0dBu (adjustable) / 600Ω balanced  |
| Sampling frequency:  | 32KHz, 44.1KHz, 48KHz  |
| Encoding standard:   | ISO / IEC11172-3 (MPEG-1 audio) layer 2 – compliant  |
| Bit rate:            | Max. 448Kb/s   |

### OUTPUT STREAM

|                      |  |
|----------------------|--|
| Stream type:         | Transport Stream                                       |
| System multiplexing: | ISO / IEC 13818-1 (MPEG2 TS) – PAT, PMT and SIT tables |

### OTHERS SPECIFICATIONS

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Pre-settings:                      | Factory presets + User configurable  |
| Teletext / Closed Captioning data: | Extraction from analogue video input |



A screenshot of the Multiplexer / Remultiplexer configuration software

## MPEG-2 Encoder

### VIDEO INPUTS

|                         |  |
|-------------------------|--|
| Video input format:     | Analog: Composite PAL / SECAM / NTSC, Y-C (S – video)<br>Digital: D1 (ITU-R 656) 8 Bit Parallel (internal connector)<br>Option: SDI (Serial Digital Interface with embedded audio or with AES/EBU audio input) |
| Composite video input:  | 1Vp-p / 75 Ω / BNC socket  |
| Composite video filter: | Notch or Comb (selectable)   |
| Pre-processing:         | TBC (Time Base Corrector) - Noise Reduction Filter   |

### VIDEO ENCODING

|  |   |
|--|---|
| Standard:                              | ISO / IEC 13818-2 MP@ML (MPEG-2 4:2:0)  |
| Bit rate:                              | Up to 15Mb/s  |
| Supported resolutions:                 | Full D1, 3/4 D1, 2/3 D1, 1/2 D1, SIF, QSIF  |
| Picture size:                          | Horizontal: up to 720 pixel in 32 pixel steps.<br>Vertical: PAL: up to 576 pixel in 32 pixel steps; NTSC: up to 480 pixel in 32 pixel steps |
| Picture encoding type / GOP Structure: | I, P, B / Flexible  |
| Minimum latency:                       | Around 200mS, according to settings (GOP structure, bit rate etc.)  |

### AUDIO INPUTS AND ENCODING

|                      |   |
|----------------------|---|
| Audio input format:  | Analog: Two (mono, stereo, dual, joint stereo)<br>Digital: LR Multiplex Serial (I2S) (internal connector)<br>Option: SDI (Serial Digital Interface with embedded audio or with AES/EBU audio input) |
| Analog audio inputs: | 0dBu (adjustable) / 600 Ω balanced / mini-DIN 6 pole  |
| Sampling frequency:  | 32KHz, 44.1KHz, 48KHz   |
| Encoding standard:   | ISO / IEC11172-3 (MPEG-1 audio) layer 1/2 – compliant   |
| Bit rate:            | Max. 448Kb/s  |

### OUTPUT STREAM

|                      |   |
|----------------------|---|
| Stream type:         | Transport stream                                |
| System multiplexing: | ISO / IEC 13818-1 (MPEG-2) – PAT and PMT tables |

### OTHERS SPECIFICATIONS

|                                    |  |
|------------------------------------|--|
| Pre-settings:                      | №4 Factory preset + №4 User configurable (by software, via RS232 port) |
| Teletext / Closed Captioning data: | Extraction from analogue video input                                   |

## Multiplexer

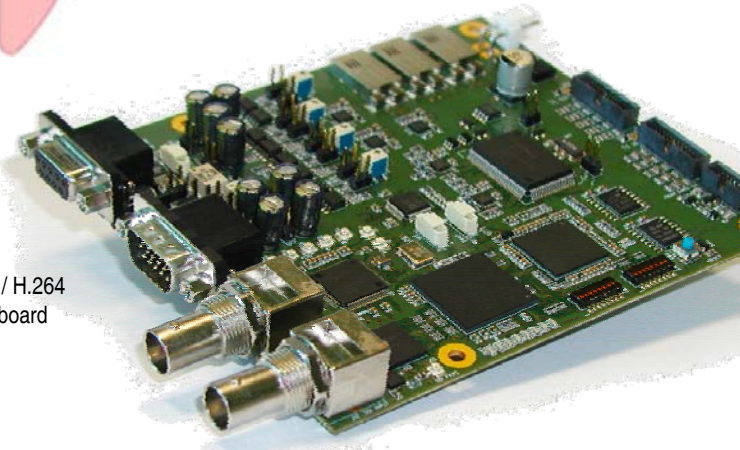
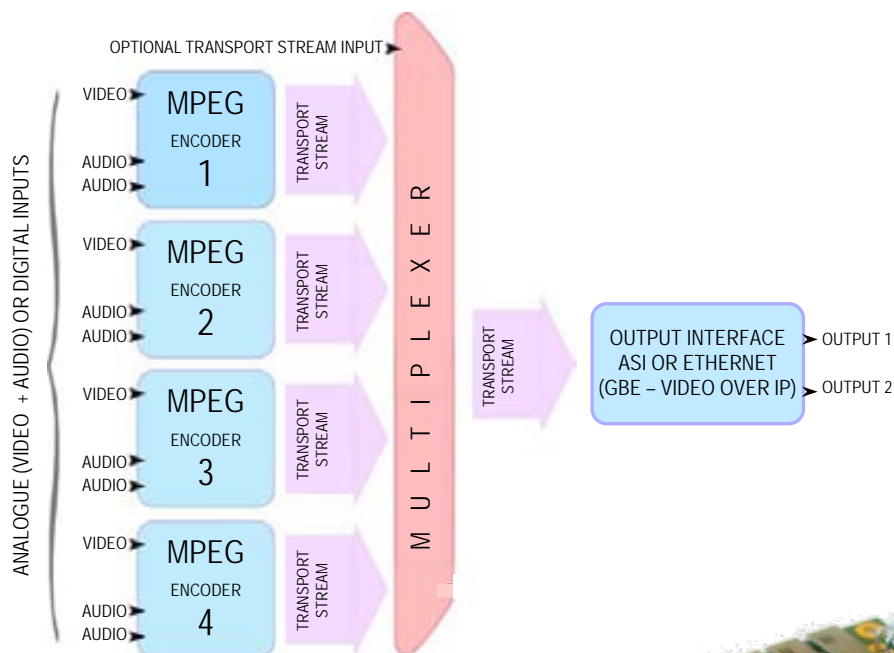
|                                    |   |
|------------------------------------|---|
| Tables:                            | Add / modify (NIT, SDT, TDT, EIT...)  |
| Settings:                          | Fixed or by software via RS232 port   |
| Optional Input:                    | DVB Transport Stream (ASI or GBE interface – PID Filtering and MHP support) |
| Teletext / Closed Captioning data: | Optional insertion in the transport stream                                  |

## General Specifications

|                                   |   |
|-----------------------------------|---|
| Output digital interface:         | DVB – ASI or Ethernet (GBE - Video Over IP)                           |
| Power supply:                     | 85 to 264Vac 50/60 Hz (Different power supplies available on request) |
| Remote control interface options: | RS232; RS485; Ethernet 10/100 Base-T (SNMP and web server support)    |
| Housing:                          | Rack drawer 19" 1U  |
| Operating temperature range:      | 0 to 45° C.   |



## EMX 4000 MPEG Encoders + Multiplexer general block diagram



MPEG-4 / H.264  
encoder board

| Model    | Number of MPEG Encoders |
|----------|-------------------------|
| EMX 4001 | 1                       |
| EMX 4002 | 2                       |
| EMX 4003 | 3                       |
| EMX 4004 | 4                       |

- EMX 400X-B versions are without multiplexer (only basic tables: PAT, PMT...)
- Other models available with built-in digital modulator (DVB-S/S2, DVB-T/H...). See DME 1000 Series.

- AVAILABLE MAIN OPTIONS:**
- SDI / AES-EBU input interface for MPEG-2 encoders
  - ASI Transport Stream Input
  - Ethernet (GBE - Video Over IP) output and/or input

Please consult factory for exact equipment configuration and options



All specifications contained in this document may be changed without prior notice.