

DAP-1781

8 Channel digital audio processor



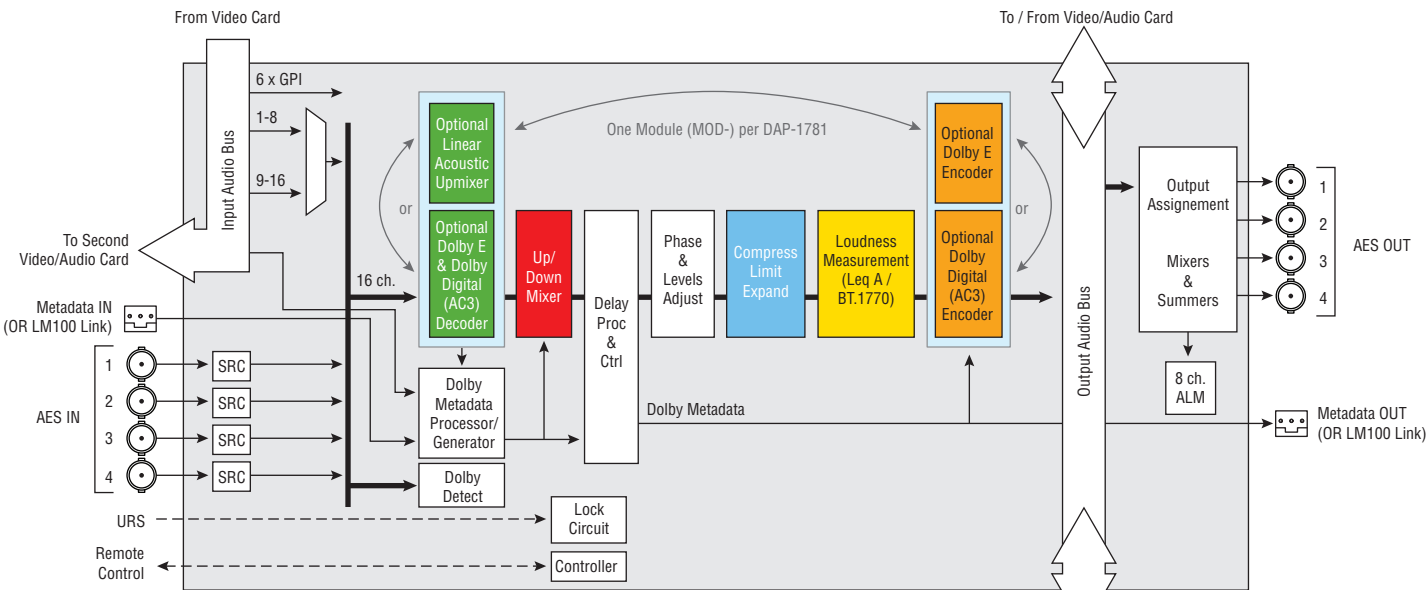
The DAP-1781 is a high quality, 8 channel (4 AES) digital audio processor which performs signal processing and synchronizing, as well as Dolby E and Dolby Digital (AC-3) encoding and decoding with Metadata support. It can be used as a standalone audio processor for discrete audio signals, or it can be combined with a wide range of SD and HD video processor modules. When working with a video processor, the DAP-1781 can be used for dynamic processing, up/downmixing, and embedding of discrete audio channels into a video signal. It can also process Dolby E and Dolby Digital (Dolby Digital) signals for encoding or decoding. Two audio processing cards can be combined together to process a total of 16 discrete audio channels. When combining any two cards together, all audio channels are synchronous, phased and delay matched to ensure proper alignment. A ribbon connector is used to carry audio, timing signals and Metadata between cards. The audio processor features two distinct processing blocks for input and output. The input processing includes gain, video tracking delay, additional fixed delay (up to 2 seconds per channel) and phase correction. The output processing block includes mixing, an

additional gain/attenuation stage, and full channel shuffling. The 2 or 4* channel mixing block allows each output channel to be composed of a mix of any 2 or 4 audio channels. This provides the capability for stereo to mono downmixes, voice-overs, descriptive mixing, and custom-mix operations. Audio crossfades and voice-over function are also available in the 2 channel mix mode. Dynamic processing is available as an option, and this offers 16 channels of audio compressor / limiter / expander that can be adjusted as individual or grouped channel. Integrated up and downmixing are also optional. The Downmixing function will create a Lt Rt, Lo Ro, custom Lt Rt or Lo Ro from a 5.1 audio. The DAP-1781 gives you the ability to select one add-on module from a wide selection, including Dolby E /Dolby Digital decoding; or encoding; or Upmixing using the upMAX™ technology from Linear Acoustic. Loudness measurement of any processed audio channels (single or multiple) can be done within the DAP-1781. It is also possible to use the loudness and Dialnorm value measured by a LM100 from Dolby.

* 4 channel mixing/summing on even output channel mixers

KEY FEATURES AND BENEFITS

- > 8 channels of audio processing with 4 AES inputs and outputs
- > Works as standalone audio processor or alongside video processing cards
- > Audio processing functions include gain (-96 to +12 dB), phase, shuffling and mixing
- > Fixed and video tracking delay
- > 2 and 4 channel mix downs and summing
- > Audio crossfades on 2 channel mix
- > Locks to video, URS frame reference or AES2
- > Provides audio level meters streamed over IP
- > Dolby E compliant
- > Metadata input and output (RS-422)
- > Optional Downmix (5.1 > 2.0)
- > Optional dynamic processing with compressor, limiter, expander
- > Dolby E / Digital decoder option
- > Dolby E / Digital encoder option
- > Optional upmixing using Linear Acoustic technology
- > Optional loudness measurement (ITU-R BS.1770 or Leq (A))
- > Dolby Metadata processing



DAP-1781 Functional Block Diagram

Optional Daughter Modules (One MOD- Per DAP-1781 Card)	
MOD-LA-DUP-701	MOD-DOLBY-ENC-E
MOD-DOLBY-DEC	MOD-DOLBY-ENC-D

Software Enabled Options	
DAP-1781-OPT-UD	DAP-1781-OPT-LM
DAP-1781-OPT-DP	

TECHNICAL SPECIFICATIONS

DIGITAL INPUTS (4)

Sampling freq.: 32 to 192 kHz
Quantization: 16 to 24 bits

AES3
Level: 0.2 to 7 Vp-p
Input impedance: 110 ohm balanced

AES3-id
Level: 0.2 to 2 Vp-p
Input impedance: 75 ohm
Return loss: >18 dB @ 12 MHz

DIGITAL OUTPUTS (4)

Sampling freq.: 48 kHz
Intrinsic Jitter: <5 mUI
(700 Hz to 100 kHz)

AES3
Level: 3.7 Vp-p
Impedance: 110 ohm balanced

AES3-id
Level: 1.0 Vp-p
Impedance: 75 ohm
Return loss: >15 dB @ 6 MHz

PROCESSING PERFORMANCES

Sampling freq.: 48 kHz
Quantization: 24 bits
Freq. response: ±0.02 dB
(20 Hz to 20 kHz)
SNR: 123 dB (A weighted)
THD+N: -130 dB
(20 Hz to 10 kHz)
Crosstalk: -120 dB
(20 Hz to 20 kHz)
Audio group delay: 2.2 ms @ 48 kHz ISR
Data group delay: 0.47 ms @ 48 kHz ISR

METADATA INPUT/OUTPUT

RS-422: asynchronous serial
format 115.2 Kbps

MISCELLANEOUS

Tone generator: 1 kHz sine wave
interrupted on left
channel (250 ms / 3 s)
EBU R49

Signal presence
threshold: from -72 to -54 dBFS (6
dB steps)

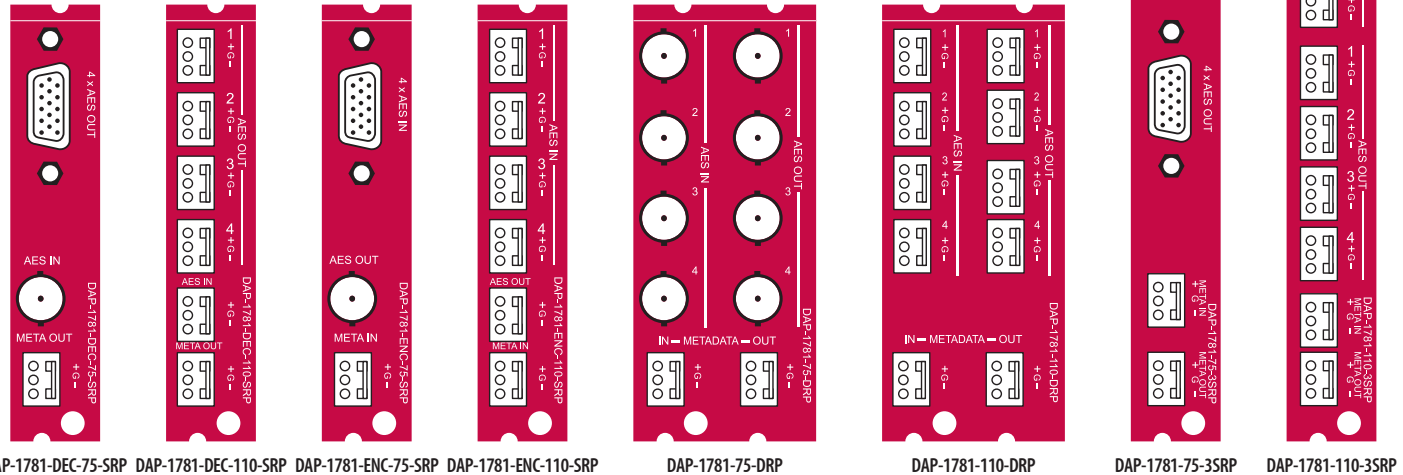
Silence detection
delay: From 1 to 255 s
(1 s steps)

Fixed delay: 0 to 2.4 s

Step: 1 ms (coarse),
1 sample (fine)

ELECTRICAL

Power: DAP-1781-xxxx-SRP: 4 W
DAP-1781-xxxx-DRP: 5 W
DAP-1781-xxxx-3SRP: 5 W



ORDERING INFORMATION

Densité 2 frame

DAP-1781 8 channel digital audio processor
DAP-1781-110-DRP Double rear connector panel, 110 ohm
DAP-1781-75-DRP Double rear connector panel, 75 ohm
DAP-1781-DEC-110-SRP Single rear connector panel for Dolby decoding, 110 ohm
DAP-1781-DEC-75-SRP Single rear connector panel for Dolby decoding, 75 ohm
DAP-1781-ENC-110-SRP Single rear connector panel for Dolby encoding, 110 ohm
DAP-1781-ENC-75-SRP Single rear connector panel for Dolby encoding, 75 ohm

Densité 3 frame

DAP-1781-3RU 8 channel digital audio processor (including 3RU adaptor)
DAP-1781-110-DRP-3RU Double rear connector panel, 110 ohm (including 3RU adaptor)
DAP-1781-75-DRP-3RU Double rear connector panel, 75 ohm (including 3RU adaptor)
DAP-1781-DEC-110-SRP-3RU Single rear connector panel for Dolby decoding, 110 ohm (including 3RU adaptor)
DAP-1781-DEC-75-SRP-3RU Single rear connector panel for Dolby decoding, 75 ohm (including 3RU adaptor)
DAP-1781-ENC-110-SRP-3RU Single rear connector panel for Dolby encoding with 3RU adaptor, 110 ohm
DAP-1781-ENC-75-SRP-3RU Single rear connector panel for Dolby encoding with 3RU adaptor, 75 ohm

Densité 3 frame (continued)

DAP-1781-110-3SRP Single rear connector panel, 110 ohm
DAP-1781-75-3SRP Single rear connector panel, 75 ohm

Options (software)

DAP-1781-OPT-DP Dynamic processing (compressor/limiter/expander)
DAP-1781-OPT-UD Upmixing, downmixing
DAP-1781-OPT-LM Loudness measurement

Options (hardware)

Note: One MOD- per DAP-1781
NSH15M HD-15 to terminal block adapter
MOD-LA-DUP-701 Upmixing using Linear Acoustic technology upMAX™
MOD-DOLBY-ENC-E Dolby E encoder
MOD-DOLBY-ENC-D Dolby Digital (AC-3) encoder
MOD-DOLBY-DEC Dolby E & Digital (AC-3) decoder
BOC-DE15-4BNC-1 75 ohm digital audio breakout cable

Related products

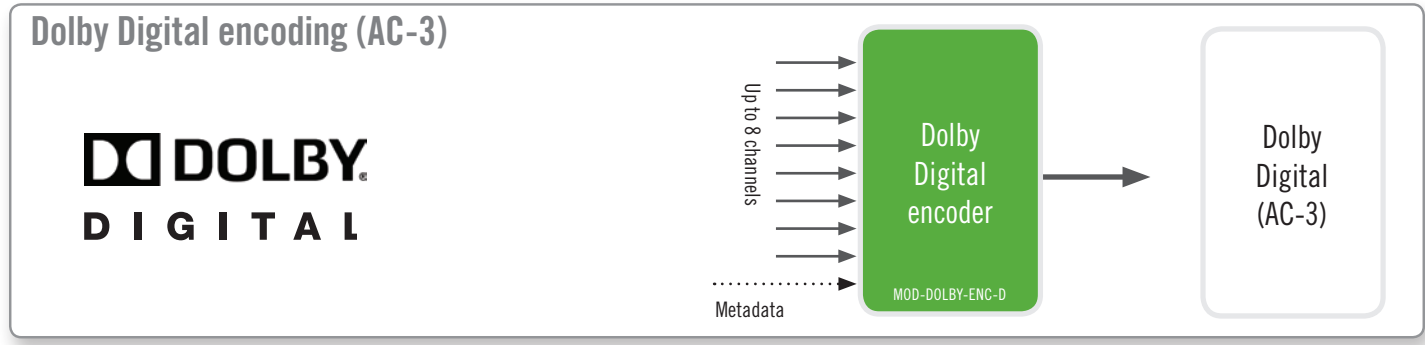
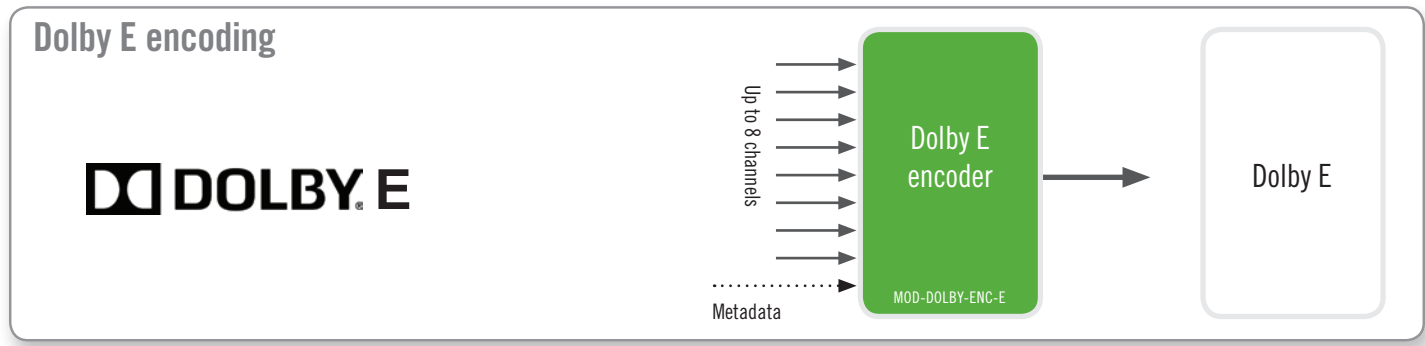
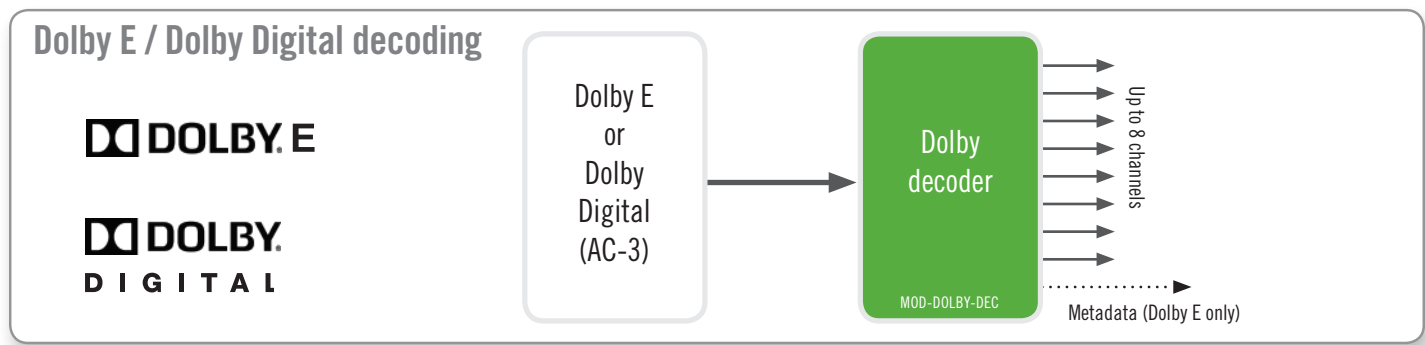
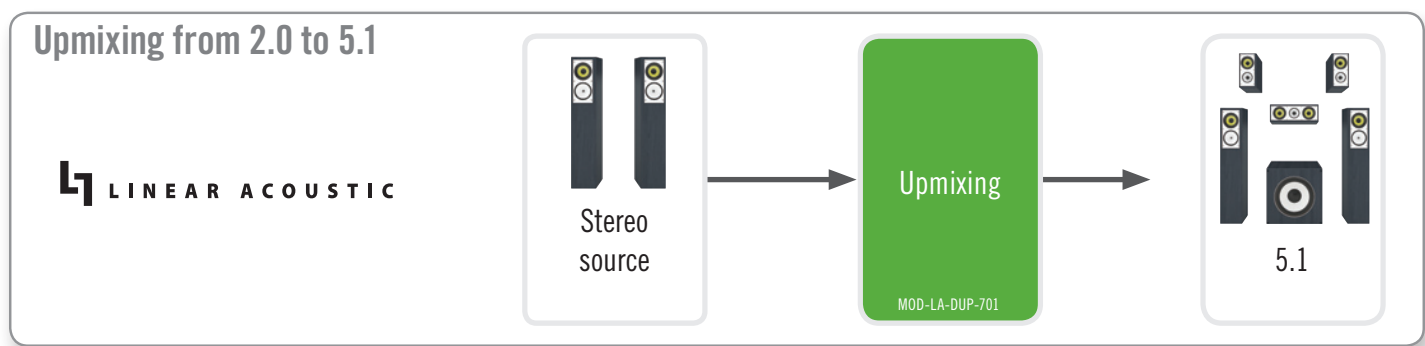
XVP-1801, FRS-1103, ENC-1103, DEC-1003, DEC-1023, EAP-1103, UAP-1783, XVP-3901

Remote control

iControl, iControl Solo, RCP-200

DAP-1781: modules for advanced audio functions

The DAP-1781 can be fitted with one or four add-on modules which offer upmixing using Linear Acoustic technology; Dolby E / Dolby Digital decoding; Dolby E encoding; and Dolby Digital encoding (AC-3).

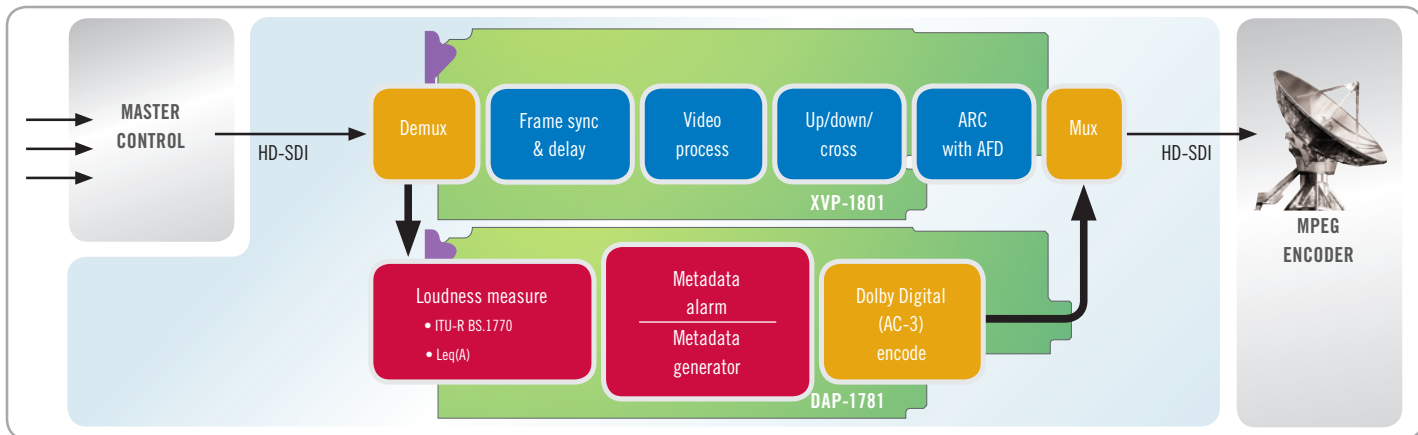


DAP-1781: loudness measurement

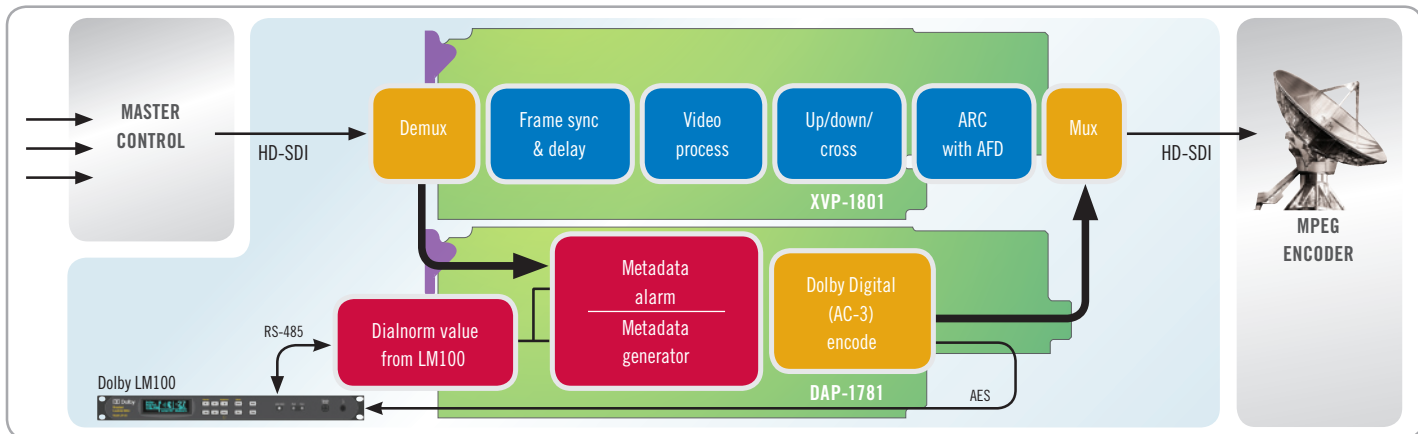
Loudness measurement is an important element in providing accurate audio levels and associated Metadata. Miranda now offers the ability to measure the loudness value of a program using its DAP-1781 module fitted with the loudness measurement option, which allows measurement of any audio channel within the module. The DAP-1781 can also be connected via RS485 to a Dolby LM100 to measure loudness using the device's Dialnorm value.

The loudness value measured can be used in many ways, such as for triggering an alarm if the value doesn't match with the associated Metadata; or for measuring the loudness of a program before being ingested in a server; or for setting the Dialnorm value of the Metadata generator.

Measuring loudness using Miranda's internal loudness measurement option with ITU-R BS.1770 or Leq(A)



Measuring loudness with Dolby's LM100



Typical application: measuring loudness to set the dialnorm value of the program during ingest

