

# 520AD4-DD-HD

## HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder



The 520AD4-DD-HD Audio De-embedder & Dolby® Decoder & Re-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 299M from a 1.5Gb/s serial HD or as defined by SMPTE 272M from a 270Mb/s serial SD video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels and the associated Dolby E metadata. Up to 8 selected channels may be optionally delayed up to 3 seconds and re-embedded into the output video and/or directed to 4 AES outputs. Video output may be optionally delayed up to 7 frames to help with lip sync. If PCM audio is embedded, the device acts as a simple 2 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.). Dolby-E is capable of carrying LTC data embedded within its stream. It can be selected as an output, instead of metadata.

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 secs. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source. This input can be re-configured as a metadata input which can be embedded in VANC, instead of the metadata coming from Dolby Decoder.

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® PRO locally or remotely.

The 520AD4-DD-HD is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

## Features & Benefits

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay (up to 7 frames)
- Headphone jack with monitoring stereo down-mix
- Dolby Metadata is embedded in HD VANC for downstream device decoding (refer to 520AD4-HD brochure)
- Secondary AES input with backup, voice-over or Dolby E/AC3 content
- Card edge display for Dolby decoder status & audio channel peak levels bargraphs
- Flexible audio channel router
- VistaLINK® capable for remote monitoring via SNMP (using VistaLINK® PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

### Inputs

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- AES input for backup/voice-over source
- Metadata input

### Outputs

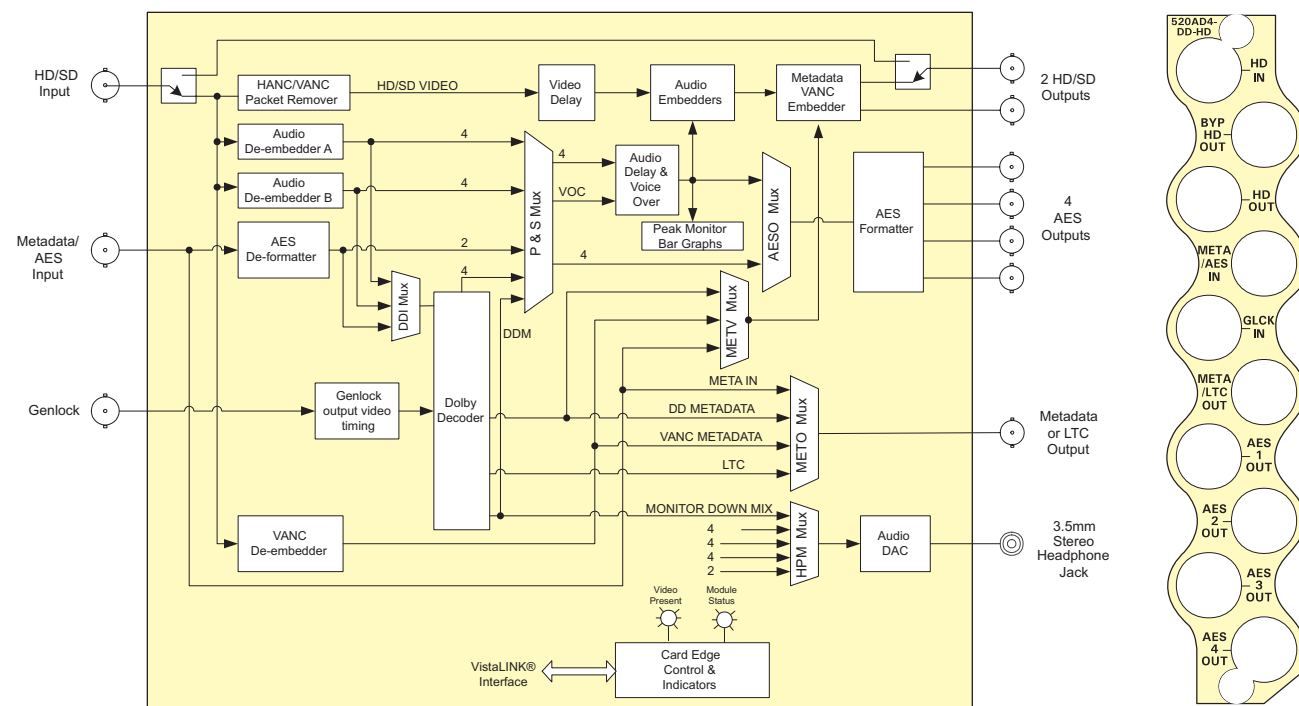
- 2 processed HD outputs (1 protected with bypass relay)
- 4 AES de-embedded and processed outputs
- 1 NC configurable as LTC or Dolby metadata (RS422/485)

### Controls

- Audio group selection
- Audio channel selection

### Card Edge LEDs

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence





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## Specifications

### Serial Video Input:

Standard: SMPTE 292M, 1080i/60, 1080i/59.94, 1080i/50, 1080p/30 (sF), 1080p/29.97 (sF), 1080p/25 (sF), 1080/24 (sF), 1080/23.98 (sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94 SMPTE 259M-C (270Mb/s) 525 or 625 line component  
Connector: BNC per IEC 60169-8 Amendment 2  
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay active

### Processed Serial Video Output:

Standard: Same as input  
Number of Outputs: 2  
Connector: BNC per IEC 60169-8 Amendment 2  
Signal Level: 800mV nominal  
DC Offset: 0V  $\pm 0.5V$   
Rise and Fall Time: Per standard  
Overshoot: < 10% of amplitude  
Wide Band Jitter: < 0.2 UI  
Metadata: Embedded according to SMPTE RP2020

### Metadata Input/Output:

Type: Dolby E Metadata SMPTE RDD6  
Connector: \*2 BNC per IEC 60169-8 Amendment 2 (\*BNC to DB9 dongles are provided)  
Baud Rate: 115,200 baud

### AES Audio Input:

Standard: SMPTE 276M  
Number of Inputs: 1  
Connector: BNC per IEC 60169-8 Amendment 2  
Input Level: 0.1 to 2.5V p-p (5V p-p tolerant)  
Input Impedance: 75 $\Omega$   
Return Loss: > 25dB 100kHz to 6MHz  
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal  
Sample Rate: 48kHz  $\pm 100$ ppm

### AES Audio Output:

Standard: SMPTE 276M, single ended AES  
Number of Outputs: 4  
Connector: BNC per IEC 60169-8 Amendment 2  
Sample Rate: 48kHz  
Impedance: 75 $\Omega$   
Resolution: Up to 24-bit

### Genlock Input:

Type: NTSC, PAL, black or any tri-level, all autodetect  
Connector: 1 BNC per IEC 60169-8 Amendment 2  
Impedance: hi-Z or 75 $\Omega$  (jumper configurable)  
Return Loss: > 40dB to 10MHz

### System Performance:

AC3 Decode Delay: 32ms nominal  
Dolby E Decode Delay: 1 frame nominal  
De-embedding Latency: 600 $\mu$ s nominal  
Additional Audio Delay: 0 to 3 seconds (user programmable)  
Additional Video Delay: 0 to 7 frames (user programmable)

### Electrical:

Voltage: +12V DC  
Power: 10W  
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

### Physical:

Number of Slots: 1

## Ordering Information

**520AD4-DD-HD** HD/SD Audio De-embedder & Dolby-E/AC-3 Decoder & Re-embedder

### Enclosures

**500FR** **exponent** Compact High Density Distribution Frame  
**S501FR** Standalone enclosure