Dolby® E Decoder and Encoder

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AIXpressor can optionally be equipped with a Dolby® E decoder and encoder. Please see Adding a Processor for instructions on installing a new processor.

Dolby E Overview

Dolby E was introduced in 1999 as a professional audio coding system that allows the distribution of multichannel digital audio within two-channel infrastructures. Up to eight channels of broadcast-quality audio, plus metadata, can be distributed via a single AES3 pair.

Dolby E Decoder

The decoder will decode all standard Dolby E programs.

Important - Unlike legacy Dolby E implementations in which the second program of a 4x2 configuration appeared on outputs 7/8, **AIXpressor always shows the audio outputs in ascending order regardless of which program configuration is being decoded.**

Input Page

Click on the **Dolby E Decoder button (A),** then on the **In button (B)** to display a running total of the **number of frames received (C).**



Figure 1 - Dolby E decoder input page

Decoder Page

Click on the **Dec button (A)** to display a **list of all parameters (B),** including (but not limited to) the following:

- **Library Version -** The version of the installed Dolby library.
- **Input Signal -** Green indicates a Dolby E signal; yellow indicates PCM audio; red indicates mute.
- **CRC Errors -** Displays the number of CRC errors in the incoming Dolby E stream. The counter can be reset with the **Execute button** at the bottom of the metadata display.
- **Frame Rate -** Indicates the frame rate of the incoming Dolby E signal.
- **Frame Offset -** Shows the offset between the incoming Dolby E signal and the system frame reference.
- **Bit Depth -** Indicates the bit depth of the incoming Dolby E signal.
- **Program Configuration -** Displays the Program Configuration metadata parameter, which determines how the audio channels are grouped within the Dolby E bitstream.
- **Program Description -** Shows the Program Description metadata, typically the name of the program or a description of the program source.
- **Channel Mode -** The Channel Mode (also known as the *Audio coding mode*) indicates the active channels within the encoded bitstream. In the decoder, this ensures the proper routing of the audio channels to downstream devices.
- **LFE Channel -** Indicates whether or not there is an LFE Channel present in the incoming bitstream.
- **Bitstream Mode -** Displays the audio service contained within the incoming Dolby E bitstream.
- **Dialog Normalization -** Also referred to as Dialog Level or *dialnorm*, this indicates the average level of dialog in the presentation and determines the proper level shift in the decoder to ensure proper normalization within and between program sources.

Note - The Decode page displays considerable additional information A detailed explanation of all metadata parameters is available in the Dolby Metadata Guide.



Figure 2 - Dolby E decoder parameter page

Meter Page

Click on the **Mtr button (A)** to view the decoder meter page. The **Peak Level meters (D)** show sample-accurate peaks for all eight incoming audio channels with a hold function. **Peak Accuracy (B)** is currently fixed at sample-accurate resolution. The **Peak Hold control (C)** allows for Automatic or Manual control of the hold feature. Clicking the **Reset Measurement Execute button (E)** resets the peak hold indicators.



Figure 3 - Dolbe E decoder meter page

Output Page

Click on the **Out button (A)** to show the **number of clients (B)** currently connected to the unit and a running total of the **number of frames emitted (C)** from the decoder.



Figure 4 - Dolby decoder output page

Important - Any preset saved and stored in the Dolby E decoder will also be available in the Dolby E encoder, providing an easy way to use the same settings and metadata values. Note that you may receive an error message if the metadata in one of the received programs does not match the program type - for instance, if LFE is activated for a 2/0 Channel Mode of a 5.1+2 Program Configuration. The encoder will automatically correct this, and you may dismiss the message.

Dolby E Encoder

Input Page

Click on the **Dolby E Encoder button (A),** then on the **In button (B)** to display a running total of the **number of frames received (C).**



Figure 5 - Dolby encoder input page

Meter Page

Click on the **Mtr button (A)** to view the encoder meter page. The **Peak Level meters (D)** show sample-accurate peaks for all eight encoded audio channels with a hold function. **Peak Accuracy (B)** is currently fixed at sample-accurate resolution. The **Peak Hold control (C)** allows for Automatic or Manual control of the hold feature. Clicking the **Reset Measurement Execute button (E)** resets the peak hold indicators.



Figure 6 - Dolby encdoer meter page

Encoder Page

Click on the **Enc button (A)** to display a **list of all parameters (B),** including (but not limited to) the following:

- **Library Version -** The version of the installed Dolby library.
- **Encoder Status -** Green indicates the encoder is active; red indicates it has stopped.
- **Video Sync Frame Rate Status -** Green indicates proper sync; red indicates a mismatch.
- **Video Sync Frame Rate -** The actual measured reference frame rate extracted from the sync signal.
- **DSP 1/2 - DSP 7/8 -** A label of the encoder inputs based on the signal type to ensure proper encoding for the chosen Program Configuration.
- **Frame Rate -** The Frame Rate of the Dolby E-encoded bitstream.
- **Video Sync Shift Offset -** Sets the guard band relative to the video switching point (see SMPTE RP 168) to ensure proper Dolby E alignment. Shift steps are measured in audio samples using a 48kHz sample rate.
- **Program Configuration -** Sets the Program Configuration metadata parameter, which determines how the audio channels are grouped within the Dolby E bitstream.
- **Program Description -** Sets the Program Description metadata, typically the name of the program or a description of the program source.
- **Channel Mode -** The Channel Mode (also known as the *Audio coding mode*) sets the active channels within the encoded bitstream.
- **LFE Channel -** Informs the downstream decoder as to whether or not an LFE channel is present.
- **Bitstream Mode -** Sets the audio service contained within the incoming Dolby E bitstream.
- **Dialog Normalization -** Also referred to as Dialog Level or *dialnorm*, this sets the average level of dialog in the presentation and determines the proper level shift in the

downstream decoder to ensure proper normalization within and between program sources.

- **Line Mode Profile -** Sets the dynamic range metadata profile for line outputs of the downstream decoder.
- **RF Mode Profile -** Sets the dynamic range metadata profile for the RF outputs of the downstream decoder.
- **DC Filter -** Determines whether or not a DC-blocking 3Hz highpass filter is applied prior to encoding to remove DC offsets in the program audio.
- **Lowpass Filter -** Determines whether or not a lowpass filter is applied to the main input prior to encoding to remove high frequencies that would not be encoded, thereby preventing aliasing upon decoding.
- **LFE Filter -** Determines whether or not a 120Hz eighth-order lowpass filter is applied to the LFE channel prior to encoding, thereby removing frequencies that would cause aliasing when decoded.

Note - A detailed explanation of all metadata parameters is available in the Dolby Metadata Guide.



Figure 7 - Dolby encoder parameter page

Output Page

Click on the **Out button (A)** to show the **number of clients (B)** currently connected to the unit and a running total of the **number of frames emitted (C)** from the encoder.



Figure 8 - Dolby encoder output page

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