



**DEE28**

**Multi format Dolby stream decoder and Dolby E encoder  
with Quad-Speed audio bus and voice over module**

**A Synapse® product**

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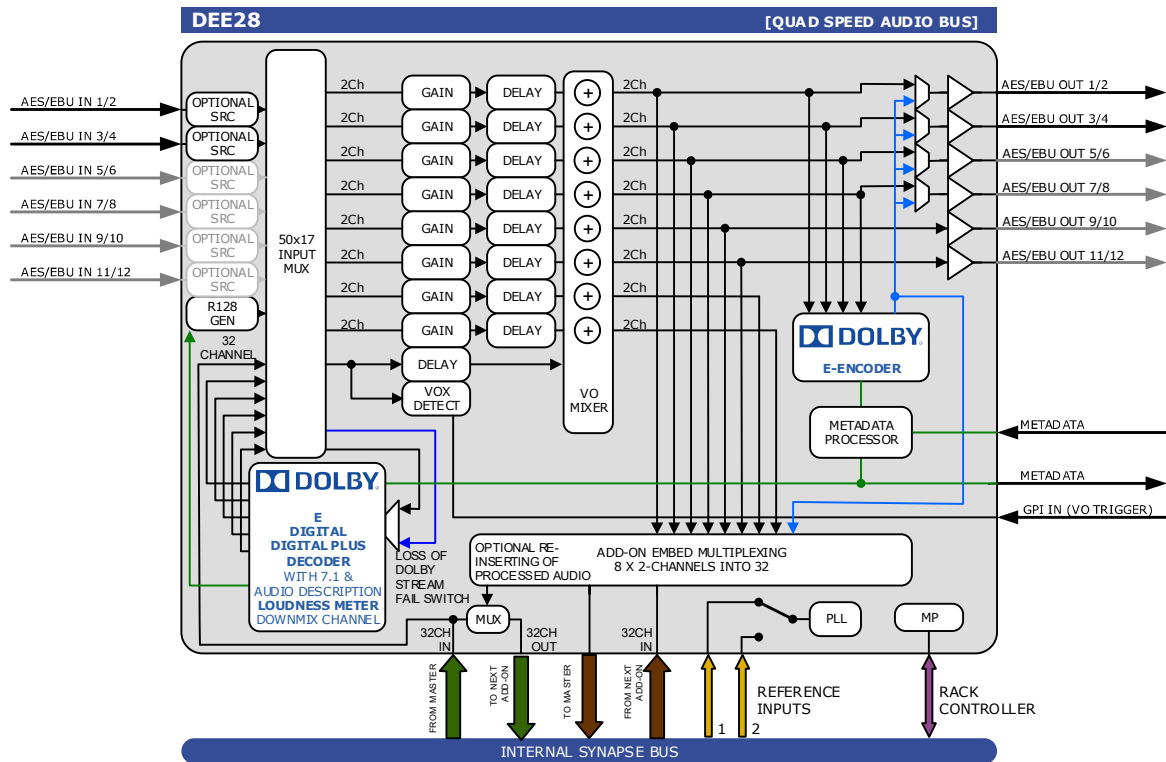


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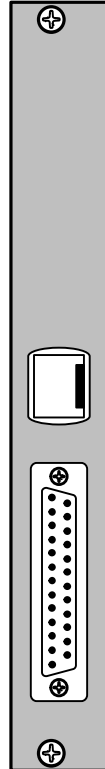
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# Block schematic & I/O panel



4 in/4 out	2 in/6 out	6 in/2 out	BPL11
AES/EBU IN 1/2	AES/EBU IN 1/2	AES/EBU IN 1/2	⊕
AES/EBU IN 3/4	AES/EBU IN 3/4	AES/EBU IN 3/4	⊕
AES/EBU IN 5/6	AES/EBU OUT 9/10	AES/EBU IN 5/6	⊕
AES/EBU IN 7/8	AES/EBU OUT 11/12	AES/EBU IN 7/8	⊕
METADATA I/O & GPI	METADATA I/O & GPI	METADATA I/O & GPI	⊕
AES/EBU OUT 1/2	AES/EBU OUT 5/6	AES/EBU IN 9/10	⊕
AES/EBU OUT 3/4	AES/EBU OUT 7/8	AES/EBU IN 11/12	⊕
AES/EBU OUT 5/6	AES/EBU OUT 1/2	AES/EBU OUT 1/2	⊕
AES/EBU OUT 7/8	AES/EBU OUT 3/4	AES/EBU OUT 3/4	⊕
			⊕

BPL11D



METADATA I/O & GPI

BALANCED AES/EBU IN/OUT  
OUTPUT LEVEL MAX. 1.7V

## Features

The DEE28 is a next generation Dolby multi format decoder and Dolby E encoder with quad speed ADD-ON audio bus. It replaces the popular DBD08 and DBE08 on a single card. Based on the Dolby's Cat. No. 1100 sub module it is capable of **decoding Dolby E, Dolby Digital and Dolby Digital Plus** and **encoding to Dolby E**. The enhanced feature set includes the capability of decoding 7.1-channel Dolby Digital Plus or 5.1-ch Dolby Digital 5.1 with audio description, carried in a single bitstream (Single PID), or as two bitstreams (Dual PID). In addition to the extensive Dolby Decoding capabilities this card can add a voice activated (or triggered by GPI) Voice Over signal to any of the decoded streams or plain PCM streams that could enter the unit. Individual delay and gain controls are available for all decoded or plain PCM streams that entered the card. A dual mode I/O configuration is possible with physical 2x AES/EBU in and 6x AES/EBU out or 4x AES/EBU in and 4x AES/EBU out.

- Multi format ADD-ON or stand alone Dolby stream decoder
  - Dolby E
  - Dolby Digital
  - Dolby Digital Plus
- Dolby E Encoder
- 16 channel PCM processing capabilities
- Quad speed audio bus for convenient routing of ADD-ON channels
- Optional re-inserting of processed audio for downstream post-processing (DLAxx)
- 2, 4 or 6 physical stereo AES/EBU inputs and 16 stereo bus inputs.
- 2, 4 or 6 physical stereo AES/EBU (can contain Dolby Bit streams) outputs and 8 stereo (into 16 stereo) bus outputs
- E decoding with automatic source selection on loss of E
- Voice activated Voice Over engine that can be applied to any of the 16 internal streams
  - GPI trigger of VO is included
  - GPI can be used as 'cough button' to mute unwanted voice activated mixing
- Physical metadata output
- Individual offset delay per channel
- Individual gain control per channel (except bitstream input)
- Able to handle all AES/EBU input formats (optional SRC on inputs)
- Full audio channel shuffling
- Loudness measurement according to ITU BS.1770 and ITU BS,1770-3 (CALM and R128)
  - A tone generator is included that can be controlled by the loudness measurement.
  - It will generate a -20dBFS sinewave when the loudness measurement reads and measures -20LUFS so a normal peak/VU/dBFS meter can be used to read loudness

Complementary cards:

- All Quad Speed audio Master cards (G/HEP100, G/HED100, G/HRB100, G/HDK200, G/HXT110 etc).
- DLAxx, DAWxx, DSF66

## Applications

- Multi format Dolby Stream monitoring decoder
- Dolby E encoder
- Efficient Dolby stream processing to Quad Speed audio Master Cards.
- Extra Dolby channel processing next to G/HEP100, G/HPD100 and G/HED100

## Ordering information

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**Modules:**

- **DEE28:** Multi format Dolby stream decoder and Dolby E encoder with voice over module

**Standard I/O:**

- **BPL11\_DEE28:** I/O panel for DIO88 with unbalanced AES/EBU in and out
- **BPL11D\_DEE28:** I/O panel for DEE28 with balanced AES/EBU in and out

## Specifications

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### AES Audio Input

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<b>Connector BPL11</b>	BNC 75 Ohm
<b>Connector BPL11D</b>	25P D-SUB FEMALE 110 Ohm
<b>Standard</b>	SMPTE 276M for single ended synchronous or asynchronous PCM/AES
<b>Number of Inputs</b>	2, 4 or 6
<b>Sampling Rate</b>	32 kHz to 192 kHz asynchronous 48 kHz synchronous to Master Card in SRC off mode
<b>Resolution</b>	24 bits
<b>Output Offset Delay</b>	0 to 1300 ms (additional to decoding latency)
<b>Input Gain Control</b>	+12dB to -60 dB
<b>Gain step size</b>	0.25dB
<b>Impedance BPL11</b>	75 Ohms
<b>Impedance BPL11D</b>	110 Ohms balanced
<b>Level</b>	0.2V to 1V nom

### AES Audio Output

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<b>Number of Outputs</b>	2, 4 or 6
<b>Connector BPL11</b>	BNC 75 Ohm
<b>Connector BPL11D</b>	25P D-SUB FEMALE 110 Ohm
<b>Resolution</b>	Up to 24 bits depending on mode
<b>Sampling Rate</b>	48KHz synchronous to Master Card
<b>Nominal Input/Output Delay</b>	1 video frame for Dolby E (TBD for other streams)
<b>Level</b>	0V to 1.7V

### Miscellaneous

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<b>Weight</b>	Approx. 300g
<b>Operating Temperature</b>	0 °C to +40 °C
<b>Dimensions</b>	137 x 296 x 20 mm (HxWxD)

### Electrical

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<b>Voltage</b>	+24V to +30V
<b>Power</b>	<18 Watts