



# Synapse

## DAC44 – DAC48

4 or 8 channel 24-bit audio D/A converter with analog and AES/EBU outputs

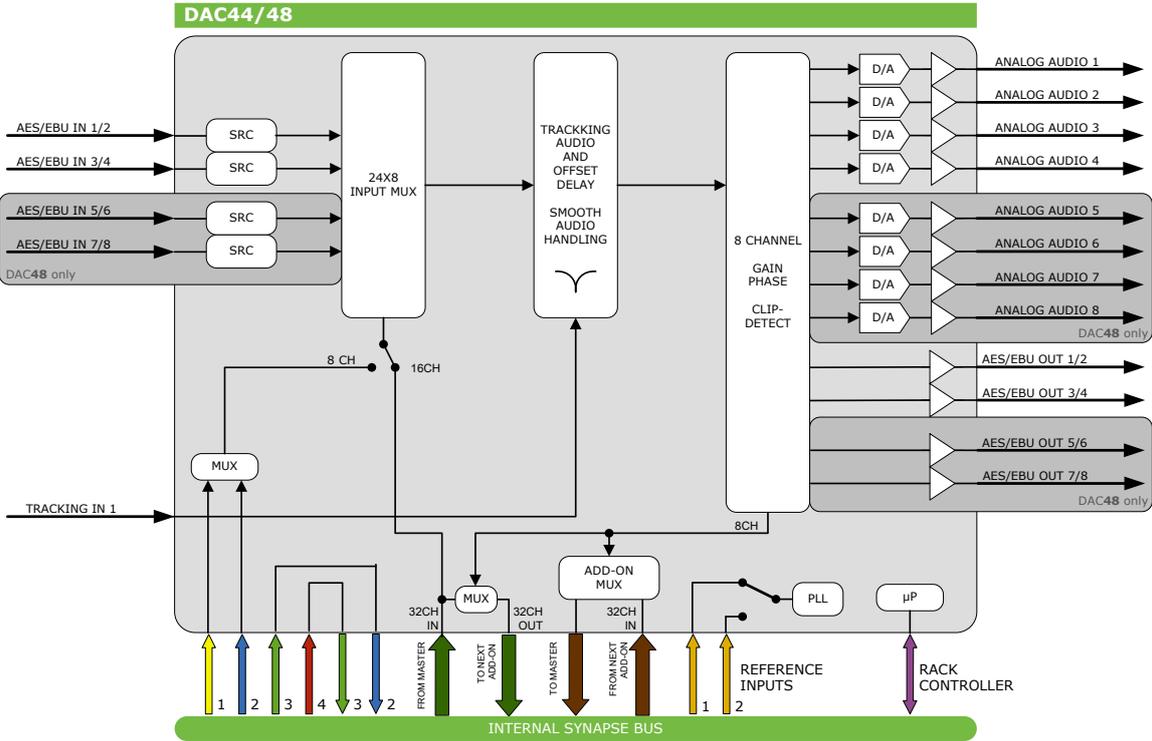
A Synapse® product

ADD-ON  
Card



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Block schematic & Connector panel



AES/EBU INPUTS 1 - 4, TRACKING INPUT

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AES/EBU OUTPUT 1 - 4

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ANALOG AUDIO OUTPUTS 1 - 8



## Features

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The DAC44 and DAC48 are multi-functional products. Their basic function is the conversion of AES/EBU digital audio to analog audio. In addition to the analog outputs they have AES/EBU outputs and offer the Synapse ADD-ON function. In ADD-ON mode the card acts as an input board which is fed by a master card positioned one slot left of the ADD-ON card. Both normal and Quad Speed Audio bus are supported. The DAC48 for example acts as an analog and digital audio de-embedder when used in combination with the AXON SAV12 (SDI to CVBS converter) or HFS12 (frame synchronizer) or in Quad Speed mode with an HLD200 (long time delay) or GXG400 (up/down/cross converter). The AES/EBU in- and outputs are available on 110 Ohm sub-D connectors. You can control channel selection/swapping, and gain and phase control of all audio channels.

The DAC44 is a 4 channel Digital to Analog converter with 2 AES inputs, 2 AES outputs and 4 analog outputs. The DAC48 is an 8 channel converter with 4 AES inputs, 4 AES outputs and 8 analog audio outputs.

- 24-bit audio conversion
- 8 analog outputs and 4 AES/EBU outputs (copy of analog channels) in DAC48
- 4 analog outputs and 2 AES/EBU outputs (copy of analog channels) in DAC44
- 96kHz and 48kHz sample clock locked to: B&B ref or word clock ref. (in ADD-ON, only 48kHz)
- 96kHz and 48kHz sample clock in free running mode (In ADD-ON, only 48kHz)
- Output analog reference levels adjustable for 12, 15, 18 and 24dBu
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON card in both normal and Quad Speed Bus mode
- Individual selection of each mono channel out of the AES/EBU domain
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary card to:

- All de-embedding master cards normal and Quad Speed Bus

## Applications

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- Generic audio D/A converter, with AES/EBU processed outputs
- ADD-ON D/A converter next to Synapse de-embedding products

## Ordering information

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### Module:

- **DAC44-I/O:** 4 channel 24 bit audio D/A converter with AES/EBU outputs
- **DAC48-I/O:** 8 channel 24 bit audio D/A converter with AES/EBU outputs

### Standard I/O:

- **BPL13-PANEL:** I/O panel for DACxx with balanced analog audio out, balanced AES/EBU in and balanced AES/EBU out

## Specifications

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### AES Audio Input

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<b>Connector</b>	female sub-D (balanced)
<b>Standard</b>	AES-1992 for balanced synchronous or asynchronous PCM/AES,
<b>Number of Inputs</b>	4
<b>Sampling Rate</b>	32 kHz to 96 kHz Synchronous 48 kHz in Master/ADD-On mode
<b>Resolution</b>	24 bits when AES inputs selected, 20 bits in Master/ADD-On mode
<b>Minimum Input/Output Delay</b>	2.5ms
<b>Impedance</b>	110 Ohms
<b>Level</b>	2V to 7V for balanced operation
<b>Minimum Input/Output Delay</b>	3.5ms

### Analog Audio Output

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<b>Type</b>	Balanced analog audio
<b>Number of Outputs</b>	8
<b>Connector</b>	female sub-D
<b>Impedance</b>	50 Ohms balanced with transformer properties
<b>Signal Level</b>	0dB FS => 12dBu, 15dBu, 18dBu or 24dBu
<b>Frequency Response</b>	< ±0.05dB (20Hz to 20kHz)
<b>Gain Mismatch</b>	< 0.25 dB @997Hz, -20dBFS Multi channel
<b>Dynamic Range</b>	>100 dB @ -60dBFS
<b>THD+N</b>	< 92dB @ 1kHz, -1dBFS
<b>Crosstalk</b>	< -100dB (20Hz to 20kHz)
<b>DC Offset</b>	< ±30mV
<b>Dynamic range</b>	> 97dB @-60dBFS

### AES Audio Output

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<b>Number of Outputs</b>	4
<b>Connector</b>	female sub-D (balanced)
<b>Resolution</b>	24 bits
<b>Sampling Rate</b>	48 or 96kHz synchronous or free running
<b>Minimum Input/Output Delay</b>	1 ms

### Miscellaneous

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<b>Weight</b>	Approx. 250g
<b>Operating Temperature</b>	0° C to +50° 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>	<15 Watts