

Apogee Quality – Multi-channel functionality

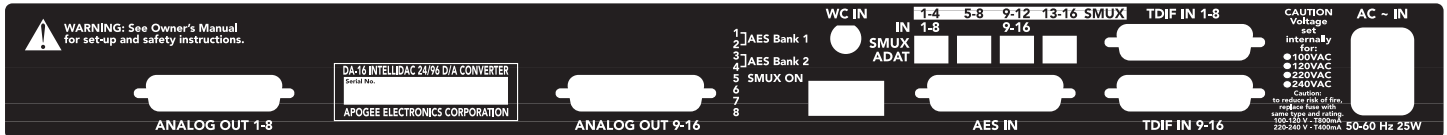
Designed for the latest hard-disk recording systems, the DA-16 "IntelliDAC" offers 16 channels of Apogee quality at an exceptionally affordable price, handling 24-bit D/A conversion at sample rates up to 96 kHz. The converters can source their digital input from either AES/EBU, ADAT optical or TDIF sources, and the unit can sync to word clock or a specified input. ADAT and TDIF inputs are organized into two groups of eight, and channels 1-8 and 9-16 can have different sources. In addition, the light-pipe inputs accept the Sonorus S/MUX protocol for sample-splitting high-resolution signals into optical interfaces, allowing access to all 16 channels – the first time this protocol has been included on an Apogee converter.

The input sample rate is detected automatically, and a two-level "Lock" indicator shows "wide" (up to ±150 degrees) and "narrow" (5 degrees) lock. LEDs indicate signal status on each channel, with the LED intensity modulated by the signal level to give an "analog-like" display. The balanced analog outputs are supplied in groups of eight channels on 25-pin D connectors, in keeping with other Apogee D/A conversion systems using

these connectors (the pinout is the same as on Tascam systems).

The subtitle "IntelliDAC" relates to the converter's unique "intelligent" two-stage re-clocking system, a first for Apogee. Apogee converters have traditionally excelled at removing jitter from the incoming clock signal, but for extremely jittery input sources, more control is needed. The DA-16 solves this problem by utilizing two clocks. A fast-responding 'read' clock, with a wide locking range, fills a dedicated FIFO buffer, while an ultra-low-jitter 'write' clock writes the data out of the buffer, and is used to clock the converters.

The advantage of this configuration is that both incoming clock and data are de-jittered. In addition, the system is less sensitive to phase errors between synchronous digital sources. Errors up to plus or minus 150 degrees can be corrected, substantially reducing the chances of glitching, and enabling the DAC to offer superior performance even when the input signal is extremely unstable.



DA-16 Preliminary Specifications

INPUTS:	16 channels of AES/EBU, TDIF and ADAT (regular and S/MUX)
OUTPUTS:	16 analog outputs, balanced, simulated Class A, -10 dBV to +28dBu
RESOLUTION:	24-bit, Delta-Sigma conversion
SAMPLE RATES:	32-106 KHz
RELATIVE THD+N (S/(N+D)):	-104 dB @ 1kHz, -0.5 dBFS input
DYNAMIC RANGE, -60 dB:	-116dB A-weighted
PASSBAND RIPPLE:	0.0002 dB
STOPBAND ATTENUATION:	115 dB
INTERCHANNEL CROSSTALK:	≤ -125 dB
FREQUENCY RESPONSE, 10 Hz-20 kHz:	Gain: ±0.15 dB Phase: << 1.0 degrees
FUNCTIONALITY:	Wide and Narrow Lock indicators, sample rate indicators. Signal present indicator per channel Clock source selection,

CONNECTORS:	WC, Bank 1 or Bank 2 Input selector (2x) Power switch & indicator Digital gain control 1 IEC power connector chassis male 1 DB25-B for AES-EBU input. 2 DB25-B for TDIF input 4 Toslink receivers for ADAT-S/MUX input 1 BNC for Wordclock input 2 DB25-B for analog output, Tascam standard pinout 1U high
CASE:	Linear power supply, Toroidal transformer
POWER SUPPLY:	100/240 Volt AC 50/60 Hz TBD
INPUT VOLTAGES:	
POWER CONSUMPTION:	

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Apogee Electronics Corporation, 3145 Donald Douglas Loop South, Santa Monica, CA 90405-3210, USA.
Tel: +1 310/915-1000 Fax: +1 310/391-6262. Email: info@apogeedigital.com. Web: www.apogeedigital.com
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