changes are timed at zero crossings to pre-

100 kohm impedance, ±0.5 dB frequency response; optional differential input

Input: single-ended, ±2.8 V full scale,

adapter available, Model 9101

+22.5 dB in 1.5 dB steps

available, Model 9101

Input gain: programmable from 0.0 dB to

Output: ±2.8 V full scale, 50 ohm imped-

ance, ±0.5 dB frequency response; optional differential output adapter

Output attenuation: programmable from

Input and output filters: digital, track at

A/D and D/A conversion: 16 bits, 80 dB

Compression/decompression: software

Sampling rates: 4 kHz to 50 kHz from

internal or ext. clock; preset rates of

8, 16, 24, 32, 44.1, 48 kHz and others

data input; FIFO data output; gain/

attenuation registers; status/control

and interrupt mask registers; sample

clock control; interrupts on FIFO full,

**Power:** 1.0 A at +5 V; 0.2 A at +12 V,

0.2 A at -12 V from the MIX bus

MIX interface: memory mapped; FIFO

programmable 8-bit A-law or µ-law

FIFO: 1 ksample expandable to 16 ksample

between A/D and MIX bus; 1 ksample

expandable to 16 ksample between the

dynamic range; ±0.9 LSB differential

45% of sampling rate; -74 dB stopband

at  $\geq$ 55% of sampling rate; ±0.1 dB ripple,

0.0 to 94.5 dB in 1.5 dB steps

0 µs group delay variance

non-linearity; 74 dB SINAD

MIX bus and D/A

half-full, empty

vent switching noise.

**Specifications** 



## Features

- Simultaneous sampling
- 16-bit 80 dB dynamic range
- Input anti-aliasing and output smoothing filters
- Software programmable attenuation, gain, compression and sampling rate
- Ideal for digital audio

### **General Information**

Although effective in a variety of applications, Model 4252 is specifically designed for digital audio use, providing sixteen individual analog inputs and outputs with 16-bit resolution.

#### **Preset Standard Sampling Rates**

Preset sampling rates can be chosen under program control for the common digital audio applications, including 44.1 kHz for CD, 48 kHz for DAT and 8 kHz for digital telecommunications.

Any other sampling rate from 4 kHz to 50 kHz can be derived from the internal clock or provided externally. Due to the sigma-delta conversion technique employed, all channels are sampled simultaneously with virtually zero phase delay between channels. Provisions are included for synchronizing the sampling clocks of multiple modules.

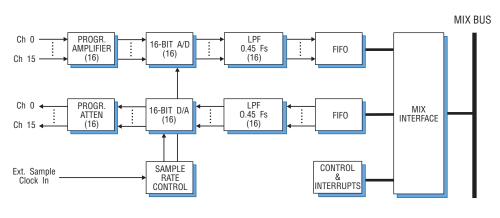
#### **Precision Data Conversion**

The data converters provide greater than 80 dB dynamic range at both input and output. For telecommunications applications built-in  $\mu$ -law and A-law companding can be selected at input and output.

## Signal Conditioning Built in

The sigma-delta converters include digital low pass filtering of all A/D inputs to prevent aliasing. These linear-phase filters track the sampling rate and exhibit extremely sharp rolloffs and flat passband response. Matching filters are provided at each D/A output to remove sampling components. Input gain and output attenuation are included. Gain and attenuation

# Block Diagram, Model 4252



Ordering Information

4252	16-Ch 16-bit A/D &
	D/A MIX module

Option: -003 16 ksample FIFO



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