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32-Channel 16-bit 100 kHz A/D Converter MIX Module

APPLICATION

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Features

- Up to 100 kHz sampling rate with all 32 channels active
- 16-bit resolution with 90 dB signal-to-noise performance
- Integral linear-phase, anti-aliasing filters
- Ideal for high-performance multichannel systems
- Available with differential inputs

Ordering Information

Model	Description
4275	32-Channel 16-bit A/D MIX module
Option:	
-007	Differential inputs

General Information

Model 4275 is a 32-channel A/D converter MIX module. It features 32 individual sigma-delta A/D converters with 16-bit resolution, sampling rates to 100 kHz and built-in signal conditioning.

Input Signal Connections

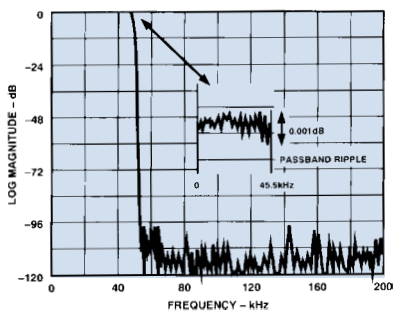
Each of the 32 inputs is buffered by an amplifier stage providing ±5.0 V full scale input voltage range. Front panel DB 37 connectors provide a convenient method for attaching signal inputs via flat ribbon cable or discrete wiring harnesses.

Signal Conditioning Built in

Following the amplifier section are 32 A/D converters, one for each input signal. These converters utilize sigma-delta technology incorporating both the sample-and-hold function and a powerful digital filtering scheme.

The digital filtering section performs the anti-aliasing functions, thereby eliminating the need for separate, external low pass filters in most applications. Another major benefit is the linear phase response of these filters, very useful for processing multisensor array signals such as those found in sonar applications, or on-line machine monitoring.

Signal-to-noise performance of these converters is 90 dB with peak spurious components better than 90 dB below full scale for signal bandwidths up to 45 kHz.



Sigma-delta converters offer passband flatness and fast rolloff rate

Specifications

Input: single-ended, ±5.0 V full scale, 10 kohm impedance, ±0.5 dB frequency response; ±10.0 V max. input voltage with respect to ground
Option -007: differential inputs

Input channels: software programmable from one to 32

Input connectors: two 37-pin (DB 37) female, compatible with standard DB 37 male connectors

Input filters: digital, passband tracks at 45.5% of sampling rate; –96 dB stopband at ≥ 52% of sampling rate; ±0.001 dB ripple, 0 µs group delay variance

A/D conversion: 16 bits, 88 dB min. dynamic range; harmonic and IM components 85 dB below full scale

A/D output coding: 16-bit, 2's complement

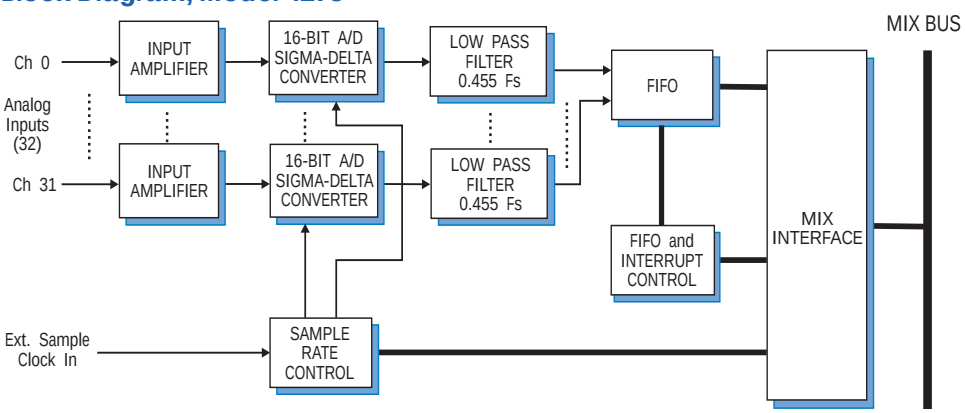
Sampling rates: 13 selectable frequencies from 8.25 kHz to 100 kHz from internal oscillator or external TTL sample clock at 256 times the desired sampling rate

FIFO: 16 ksample x 32 bits between A/D and MIX bus

MIX interface: FIFO output - one 16-bit sample per transfer in non-packed mode; two 16-bit samples per transfer in packed mode; status/control and interrupt mask registers; sample clock control; interrupts on FIFO full, half-full, empty

Power: 3.0 A at +5 V; 0.2 A at +12 V, 0.2 A at –12 V from the MIX bus

Block Diagram, Model 4275



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