



**Features**

- Up to 200 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
4277	32-Channel, 16-bit 200 kHz A/D MIX module

**Options:**

- 007 Differential inputs
- 008 ±10.0 V full scale input voltage range

**General Information**

Model 4277 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 200 kHz and built-in signal conditioning.

**Input Signal Connections**

Each of the 32 inputs is buffered by either a single-ended or differential amplifier stage (see Specifications for available options). 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 sampling 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 is typically 90 dB with peak spurious components typically better than 90 dB below full scale for signal bandwidths up to 90 kHz.

**Specifications**

- Input:** single-ended inputs, ±5.0 V full scale, 10 kohm impedance  
Option -007: differential inputs, ±5.0 V full scale, 100 kohm impedance  
Option -008: single-ended inputs, ±10.0 V full scale, 10 kohm impedance
- Max. input voltage:** 2 x F.S. input voltage with respect to ground
- Input stage frequency response:** ±0.5 dB, 10 Hz to 90 kHz
- Input channels:** software programmable from one to 32
- Input connectors:** two 37-pin (DB 37) female, compatible with standard DB 37 male connectors
- Sigma-delta filters:** digital lowpass, pass-band tracks at 45.35% of sampling rate with ±0.003 dB ripple; stopband tracks at 55% of sampling rate with >100 dB attenuation; 0 µs variation group delay
- A/D conversion:** 16 bits, 88 dB min. SNR (AKM Semiconductor AK5394); harmonic and IM components 85 dB below full scale
- A/D output coding:** 16-bit, 2's complement
- Sampling rates:** 13 selectable frequencies from 12.5 kHz to 200 kHz from internal oscillator or external TTL sample clock at 64, 128 or 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 4277**

