The 104-AIO16-16W is a high-speed, 16-bit resolution board which provides speeds up to 500kHz for 16 single-ended or eight true differential analog input channels. This multifunction board features an excellent price/performance value for precision PC/104-based data acquisition, control, or signal analysis of standalone environmental test stations, compact production test equipment, portable testers, avionics and other applications.

The 104-AIO16-16W features 11 standard analog input ranges and a filtered, extremely quiet front end. The module also offers on-board hardware oversampling for additional noise reduction. In addition to direct data transfers, the board’s ability to trigger the A/D in real time assures synchronized sampling that is unaffected by other computer operations—an essential requirement for signal, vibration and transient analysis where high data rates must be sustained for short periods of time. The 500kHz sampling rate is supported by a 1024-sample FIFO (optional, 2, 4, 32, and 64K samples) for reducing processor overhead. Sixteen parallel bits of digital I/O and two 12-bit D/A outputs allow for a complete, high-performance data acquisition solution.

SOFTWARE
The 104-AIO16-16W is supported for use in most operating systems and includes a free DOS, Linux and Windows 95/98/Me/NT/2000/XP/2003 compatible software package. This contains sample programs and source code in "C" and Pascal for DOS, and Visual Basic, Delphi, C++ Builder, and Visual C++ for Windows. Also included is a graphical setup program in Windows. Linux support includes installation files and basic samples for programming from any user level via an open source kernel driver.
16-Bit High Speed

PC/104 MULTIFUNCTION ANALOG I/O

Specifications

A/D

- Inputs: 16 single-ended or 8 differential
- Resolution: 16-bit resolution
- Bipolar ranges: ±0.5V, ±1V, ±2V, ±2.5V, ±5V, ±10V
- Unipolar ranges: 0-1V, 0-2V, 0-4V, 0-5V, 0-10V
- Sampling rate: 500kHz
- Type: Successive approximation
- Overvoltage protection: -37V to +52V
- Nonlinearity: ±4 LSB, monotonic
- A/D FIFO: 1024 16-bit wide samples (optional 2, 4, 32, and 64K)
- Calibration: Offset and gain values stored in EEPROM
- Trigger Source: Software selectable: external trigger, programmable timer, program command, A/D start, single scan start

D/A

- Outputs: 2
- Resolution: 12-bit resolution
- Ranges: 0-5V, 0-10V
- Relative accuracy: ±2 LSB
- Diff. Nonlinearity: ±0.2 LSB
- Settling time/Update rate: 8µs/100kHz
- Output current: 5mA
- Calibration: Gain values stored in EEPROM

Digital I/O

- Number of I/O: 16, programmable as inputs or outputs in groups of 8
- Input voltage: Logic low: 0.0V min, 0.8V max; Logic high: 2.0V min, 5.0V max
- Input current: ±1µA max
- Outputs: Logic low: 0.0V min, 0.55V max; Logic high: 2.4V min, 5.0V max
- Output current: Logic low: 24mA max sink; Logic high: 24mA max source

Counter/Timers

- Type: 82C54
- A/D Pacer clock: 16 or 32-bit
- Clock Frequency: 10MHz

General

- Power required (using optional DC/DC converter): +5V at 190mA typ
- Power required: +12VDC - 25mA typical, -12VDC - 25mA typical, +5VDC - 65mA typical
- Operating Temperature: 0 to +70°C, optional -40 to +85°C
- Storage Temperature: -50 to +120°C
- Humidity: 5% to 90% RH, non-condensing

Ordering Guide

104-AI016-16W 16-bit, High-Speed, 16-channel A/D with 12-bit D/A