



AX5621

High Resolution Data Acquisition Board



FEATURES

- Compatible with Keithley Metrabyte DAS-HRES
- Programmable gains of 1, 2, 4, and 8
- 8 differential analog inputs with 16-bit resolution
- Up to 50KHz sampling rate through DMA mode operation
- Programmable pacer clock initiates data conversions
- 2 channels of 16-bit analog output
- 8-bit of TTL/DTL compatible digital input and output

- 1 channel counter/timer
- Furnished software diskette contains utility routines, example programs, calibration program

GENERAL DESCRIPTION

The AX5621 is a high resolution data acquisition plug-in board for the IBM PC/XT/AT and compatible computers. It features 16-bit A/D resolution and up to 50KHz throughput rate.

The AX5621's 8 differential analog input channels offer good noise immunity and high accuracy A/D conversions. The onboard programmable gain amplifier can be configured for voltage gains of 1, 2, 4, and 8, with input ranges of +10V, +5V, +2.5V, +1.25V for unipolar and $\pm 10V$, $\pm 5V$, $\pm 2.5V$, $\pm 1.25V$ for bipolar.

Three kinds of A/D conversion speed are supported; low ADC speed which is initiated by software trigger, middle ADC speed (with up to 3KHz A/D throughput) which is triggered via interrupt, and high ADC speed (with up to 50KHz A/D throughput) which is triggered by timer or external clock where the transfer of data is accomplished by DMA.

In addition to its analog input channels, the AX5621 also provides two 16-bit analog output channels. The D/A converter, with internal reference voltage, uses program-mable D/A code to output a voltage within the range of -10V to +10V.

Eight digital input and eight digital output lines are also available at the AX5621's 50-pin connector. These general purpose digital I/O lines are TTL/DTL compatible.

For timing functions, the AX5621 uses 8254 chip to provide trigger pulses for A/D converter at any rate from 2.5MHz to 1 pulse/hr. The 8254 chip has three programmable counter/timer channels. Two of its channels are configured to fixed divider with 1MHz or 10MHz internal crystal clock. The third channel is configured as a gated 16-bit binary counter for user to use.

APPLICATIONS

- Laboratory Automation
- Data Logging
- Signal Analysis
- Chromatography
- Product Test
- Process Control

SPECIFICATIONS

Analog Input Subsystem

- **Number of inputs:** 8 Differential Inputs
- **Resolution:** 16-bit
- **Gain :** 1, 2, 4, 8
- **Input Range:** Unipolar : 0-1.25, 2.5, 5, 10V ; Bipolar : ± 1.25 , 2.5, 5, 10V
- **A/D Throughput:** 50KHz
- **System Accuracy(Gain=1):** $\pm 0.003\%$ FSR
- **Channel Acquisition Time to $\pm 1/4$ LSB:** Gain=1, 2, 4, 8 : 16m s
- **A/D Conversion Time:** 16m s
- **Input Impedance:** Off Channel: 100MW , 20pF ; On Channel: 100MW , 20pF
- **Maximum Input Voltage Without Damage:** Power On: $\pm 35V$; Power Off: $\pm 20V$
- **Common Mode Rejection Ratio:** Gain=1 : 80dB
- **Integral Nonlinearity:** ± 1 LSB
- **Number of Interrupts:** 5
- **Channels of DMA:** 1 or 3

Analog Output Subsystem

- **Number of Channel:** 2
- **Output Ranges:** $\pm 10V$
- **Current Output Rating:** $\pm 5mA$ max.

Digital I/O Subsystem

- **Digital Input Lines:** 8
- **Digital Output Lines:** 8
- **Logic Family:** LSTTL
- **Input/Output Level:** TTL/DTL compatible

Counter/Timer Subsystem

- **Type:** 8254 programmable interval timer counters. Three 16-bit down counters.
- **Clock Input:** D.C. to 10MHz
- **Input Level:** TTL, DTL, CMOS compatible
- **Output Range:** 2.5MHz to 72 minutes/pls

Power Requirements

- **+12VDC :** 120mA typ.
- **- 12VDC :** 20mA typ.
- **+ 5VDC :** 600mA typ.

Physical/Environmental

- **Dimensions:** 175 ´ 100mm
- **Weight:** 300g
- **Relative Humidity:** 0 to 90%, non-condensing

ORDERING GUIDE

- **AX5621:** High Resolution Data Acquisition Board, including user's manual and utility diskette with Basic, C, Pascal and Windows drivers

Screw Terminal Panel

- **AX750:** General Purpose Screw Terminal Panel, with 1 meter cable and 50-pin connector, is a convenient connection interface for A/D, D/A and DIO signals
- **AX740:** Universal Development Panel, with 1 meter cable and 50-pin connector, is a convenient connection interface for counter/ timer signal

Signal Conditioning Panel

- **AX752I:** 16 Ch. Relay Isolated Multiplexer/Amplifier Module
- **AX752:** 16 Ch. Amplifier & Multiplexer Panel
- **AX757:** 8 Ch. Relay Output & Opto-isolated D/I Panel

Software Package

- **AS59000:** Real-time Graphs Data Acquisition Software
- **AS59001:** PC-Based Oscilloscope Software
- **AS59002:** High Speed Data Acquisition to Disk
- **AS59010:** DAS Windows Driver
- **AS59020:** DAS Win 95 Driver
- **AS59040:** DAS Win NTDriver

Third-party Software Package

- **LABTECH NOTEBOOK**
- **LABTECH CONTROL**
- **Snap-Master**

Note: Please turn to the "Application Software Package" for more details.

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