AX10410 High Speed Data Acquisition Module

Features

- PC/104 standard expansion module
- Compatible with Keithley Metrabyte DAS-16G
- Programmable gains:1, 2, 4 and 8
- 16 Single-ended or 8 differential analog inputs with 12-bit resolution
- Up to 90KHz sample rate through DMA mode operation
- 2 channels of 12-bit D/A output
- 8-bit TTL/DTL compatible inputs and outputs
- 1 channel counter/timer
- Software drivers containing Basic, C, Pascal and Windows 3.1, Windows 95 and Windows NT

General Description

The AX10410 is a member of PC/104 family. This module can be installed to any PC/104 CPU boards to become a high performance data acquisition and control system. It offers five most desired functions in a PC/104 form-factor package: Analog Input, Analog Output, Digital Input, Digital Output and Counter/Timer.

The AX10410 features 8 differential or 16 single-ended analog input with 12-bit resolution. The AX10410 has a maximum sample rate of 90KHz. The AX10410 provides ranges for signal level inputs of +10V, +5V, +2.5V, +1.25V for unipolar and 10V, 5V, 2.5V, 1.25V for bipolar. The transfer of data can be accomplished in 3 ways: by software trigger, interrupt service routine or DMA.

In addition to its analog inputs, the AX10410 als provides two channels of 12-bit analog output. The D/A converter may be operated with internal reference voltage 5V bipolar or 0 to 10V unipolar.

16 bits of digital I/O are available on the AX10410. Eight bits of digital output and eight bits of digital input are brought out through the AX10410's 50-pin connector.

Application

- Laboratory Automation
- Signal Analysis
- Chromatography
- Process Control

Specifications

Analog Input Subsystem

- **Number of inputs:** 16 S.E. or 8 D.I.
- **Resolution:** 12-bit
- **Gain:** 1, 2, 4, 8
- **Input Range:**
  Unipolar: 0-1.25, 2.5, 5, 10V
  Bipolar : ±1.25, 2.5, 5, 10V
- **Sampling Rate:** 90KHz max.
- **System Accuracy (Gain=1):** ±0.03% FSR
- **Channel Acquisition Time to ±1/2 LSB** Gain=1, 2, 4, 8
- **A/D Conversion Time:** 10μs
- **Input Impedance**
  Off Channel: 100MΩ, 20pF
  On Channel: 100MΩ, 20pF
- **Maximum Input Voltage Without Damage**
  Power On: ±35V
  Power Off: ±20V
- **Common Mode Rejection Ratio:**
  Gain=1 : 90dB
- **Integral Nonlinearity:** ±1 LSB
- **Number of Interrupts:** 1
- **Channel of DMA:** 1 or 3

Analog Output Subsystem

- **Number of Channel:** 2
- **Output Ranges:**
  5V or 0 to +10V, internal reference supplied
- **Current Output Capacity:** +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:
  programmable interval timer coun-
  ters 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 Requirement
- +5VDC : 0.6A typ.

Physical/Environmental
- Dimensions (L x W): 95 x 90mm
- Weight: 130g
- Relative Humidity:
  0 to 90%, non-condensing

Ordering Information
- AX10410
  High Speed Data Acquisition Module, Gains: 1, 2, 4,
  8, including user's manual, 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
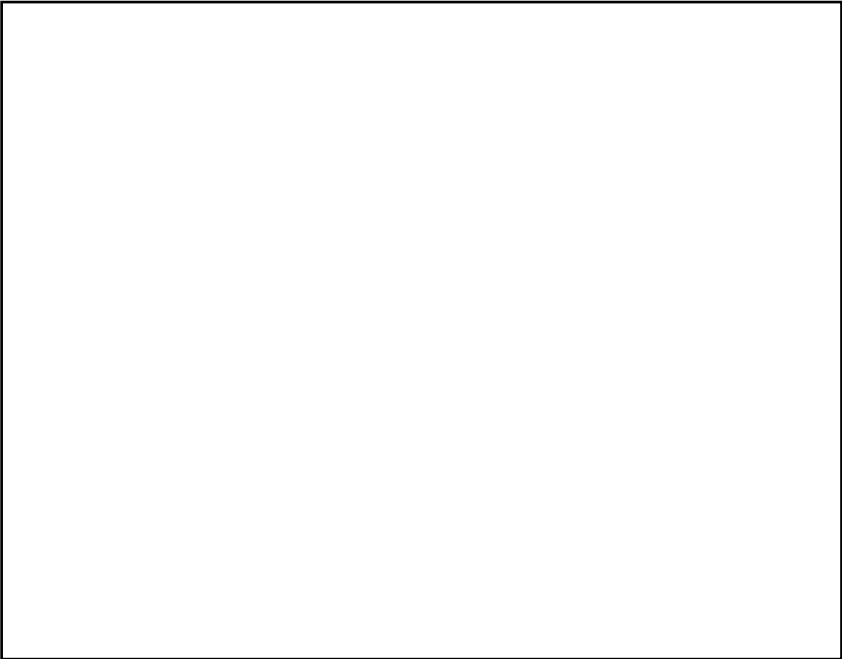 connection interface for A/D, D/A and DIO signal

Other Terminal Panel
- AX752
  16 Ch. Amplifier & Multiplexer Panel
- AX757
  8 Ch. Relay Output & Optoisolated D/I Panel

Software Package
- AS59010
  DAS Windows Driver
- AS59020
  DAS Win 95 Driver
- AS59040
  DAS Win NT Driver

Block Diagram

Connector Pin Assignment

Name	JP1		Name
AI0	1	2	AI8
AI1	3	4	AI9
AI2	5	6	AI10
AI3	7	8	AI11
AI4	9	10	AI12
AI5	11	12	AI13
AI6	13	14	AI14
AI7	15	16	AI15
AGND	17	18	N/C
N/C	19	20	N/C
OUT0	21	22	ECLK0
DA0	23	24	DA1
AGND	25	26	AGND
DO0	27	28	DI0
DO1	29	30	DI1
DO2	31	32	DI2
DO3	33	34	DI3
DGND	35	36	DGND
DO4	37	38	DI4
DO5	39	40	DI5
DO6	41	42	DI6
DO7	43	44	DI7
+5VP	45	46	+12VP
ERTG	47	48	RSVD
DGND	49	50	DGND

Note: All specifications are subject to change without notice.