

ISA Multi-Function Board

A-821PG

16-channel 12-bit 45KS/s multi-function board



A-821PGH



A-821PGL

Features

- 12-bit A/D converter
- 45KS/s sampling rate(Max.)
- 16 single-ended or 8 differential analog inputs
- A/D Trigger modes: Software Trigger, Pacer Trigger
- A/D data transfer modes: polling, interrupt
- Software programmable gain: 1, 10, 100, 1000 (A-821PGH); 1, 2, 4, 8 (A-821PGL)
- Bipolar analog input
- One 12-bit analog output channel
- Interrupt handling
- 16 digital inputs & 16 digital outputs

Functional Description

The A-821PGH/L (H for high gain; L for low gain) are 12-bit multi-function analog and digital I/O boards for the PC/ AT compatible computer. The A-821PGH/A-821PGL offers 16-channel single-ended or 8-channel differential analog input, one channel analog output with 12-bit resolution, 16-channel digital input, 16-channel digital output. It has a maximum sampling rate of 45K samples/s.

Applications

- Laboratory automation
- Sensor interface
- Production test

Specifications

Analog Input

- Number of channels: 16 single-ended or 8 differential
- Resolution: 12-bit
- ADC conversion rate: 45KS/s max
- Input impedance: 10,000 MΩ II 6pF
- Over voltage protection: ±35V
- Accuracy: 0.01% of reading ±1 bit
- Zero drift: ±25ppm/ °C of F.S. max

PGL Input Range

Gain	Bipolar(V)	Sampling Rate(Max.)
1	±5V	45KS/s
2	±2.5V	45KS/s
4	±1.25V	45KS/s
8	±0.625V	45KS/s

PGH Input Range

Gain	Bipolar(V)	Sampling Rate(Max.)
1	±5V	45KS/s
10	±0.5V	45KS/s
100	±0.05V	10KS/s
1000	±0.005V	1KS/s

Analog Output

- Number of channels: 1 independent
- Type: 12-bit double-buffered (AD-7948)
- Linearity: ±1/2-bit
- Output range: 0~5V, 0~10V
- Output Driving: ±5 mA
- Settling time: 0.6 μ s to 0.01% for full scale step

Digital I/O

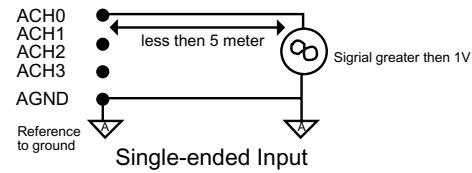
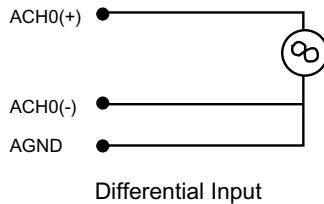
- 16 TTL-level input
- Input low V_{IL} = 0.8V max; I_{IL} = -0.4 mA max
- Input high V_{IH} = 2.0V min; I_{IH} = 20 μ A max
- 16 TTL-level output
- Output low V_{OL} = 0.5V max; @I_{OL} = 8 mA max
- Output high V_{OH} = 2.7V min; @I_{OH} = 0.4 mA max

Counter/Timer

- Number of channels: 1
- Resolution: 16-bit
- Compatibility: 5V/TTL
- Internal clock: 2MHz
- External clock: up to 10 MHz
- A/D pacer: cascaded 32-bit counter
- Programmable internal timer: 0.0047Hz~0.5MHz

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Single-ended & Differential Input

The A82X series provides 16-channel single-ended or 8-channel differential analog input. Single-ended inputs are all referenced to a common ground point. They are typically used when the input signal are greater than 1 volt, the lead wires from the signal source to the analog input hardware are short (less than 5 meter), and all input signals share a common ground reference. If above criteria do not meet, you should use differential inputs.

The common-mode noise can be canceled, when the input is configured in differential mode.

General Specifications

- I/O connector: one 37-pin D-Sub female
two 20-pin ribbon male

Power requirements:

Device	+5V	+12V	-12V
A-821PG	320 mA	60 mA	30 mA

Operating temperature: 0 ~ 60°C

Operating humidity: 0 ~ 90% non-condensing

Storage temperature: -20 ~ 70°C

Dimensions: 170 mm x 122 mm

Ordering Information

Standard

- A-821PGH:** 16-channel, 12-bit 45KS/s high gain multi-function board
- A-821PGH/S:** A-821PGH with DB-8225
- A-821PGL:** 16-channel, 12-bit 45KS/s low gain multi-function board
- A-821PGL/S:** A-821PGL with DB-8225
- A-821PGL/DNA:** A-821PGL without D/A

Optional

- DB-8225:** Screw terminal board with CJC
- DB-889D:** 16-channel multiplexer and signal conditioning board
- DN-37:** 2x37-pin connector DIN-rail mounting terminal board
- DB-37:** 37-pin D-sub directly connector terminal board
- DN-20:** 2x20-pin header DIN-rail terminal board
- DB-16P:** 16-channel isolated D/I board
- DB-16R:** 16-channel relay board
- ADP-20/PCI:** 20-pin extender

Pin Assignment

CN1

N.C.	37	○	19	+5V OUT
N.C.	36	○	18	N.C.
N.C.	35	○	17	N.C.
N.C.	34	○	16	N.C.
N.C.	33	○	15	N.C.
N.C.	32	○	14	A.GND
N.C.	31	○	13	+12V
D/A OUT	30	○	12	N.C.
A.GND	29	○	11	N.C.
A.GND	28	○	10	A.GND
AI15	27	○	09	A.GND
AI14	26	○	08	AI 7
AI13	25	○	07	AI 6
AI12	24	○	06	AI 5
AI11	23	○	05	AI 4
AI10	22	○	04	AI 3
AI 9	21	○	03	AI 2
AI 8	20	○	02	AI 1
		○	01	AI 0

CN2

DI 0	1	○ ○	2	DI 1
DI 2	3	○ ○	4	DI 3
DI 4	5	○ ○	6	DI 5
DI 6	7	○ ○	8	DI 7
DI 8	9	○ ○	10	DI 9
DI 10	11	○ ○	12	DI 11
DI 12	13	○ ○	14	DI 13
DI 14	15	○ ○	16	DI 15
D.GND	17	○ ○	18	D.GND
+5V	19	○ ○	20	+12V

CN3

DO 0	1	○ ○	2	DO 1
DO 2	3	○ ○	4	DO 3
DO 4	5	○ ○	6	DO 5
DO 6	7	○ ○	8	DO 7
DO 8	9	○ ○	10	DO 9
DO 10	11	○ ○	12	DO 11
DO 12	13	○ ○	14	DO 13
DO 14	15	○ ○	16	DO 15
D.GND	17	○ ○	18	D.GND
+5V	19	○ ○	20	+12V