

A-823PG/822PG

16-channel 12-bit 125KS/s multi-function boards



A-823PG



A-822PG

Functional Description

The A-823PGH/L and A-822PGH/L (H for high gain; L for low gain) are 12-bit multifunction analog and digital I/O boards for the PC/AT compatible computer. The A-823PG/A-822PG offers 16-channel single-ended or 8-channel differential analog inputs, plus two channels of analog output with 12-bit resolution. In addition, The A-823PG/A-822PG has 16-channel digital input, 16-channel digital output, and one channel timer/counter. Its sampling rate can reach 125K samples/second. The DMA operation is jumper-selectable for levels 1 or 3. Interrupts are jumper-selectable between 3 and 15. The A-823PG provides unipolar and bipolar D/A output, while the A-822PG provides only unipolar D/A output.

Applications

- Signal analysis
- Industrial automation
- Laboratory automation
- FFT & frequency analysis
- Transient analysis
- Production test
- Process control

Specifications

Analog Input

- Number of channels: 16 single-ended or 8 differential
- Resolution: 12-bit
- Conversion time: 8 μ s
- Maximum ADC conversion rate: 125KS/s
- Input impedance: 10,000 M Ω || 6pF
- Over voltage protection: \pm 35V
- A/D converter: \pm 1LSB max INL

Features

- 12-bit A/D converter
- 125 KS/s sampling rates(Max.)
- 16 single-ended or 8 differential analog inputs
- A/D Trigger modes: Software Trigger, Pacer Trigger, External Trigger and Event Trigger
- A/D data transfer modes: polling, interrupt, DMA
- Software programmable gain:
PGH: 0.5, 1, 5, 10, 50, 100, 500,1000
PGL: 0.5, 1, 2, 4, 8
- Bipolar and unipolar analog input
- Two 12-bit D/A Voltage output channels
- 16 digital inputs & 16 digital outputs
- 1-channel general purpose programmable 16-bit counter/timer

- On chip sample & hold
- Accuracy: 0.01% of reading \pm 1 bit
- Zero drift: \pm 25ppm/ $^{\circ}$ C of FS max

PGH Input Range

Gain	Bipolar(V)	Unipolar(V)	Sampling Rate(Max.)
0.5	\pm 10	X	125KS/s
1	\pm 5	0~10	125KS/s
5	\pm 1	X	80KS/s
10	\pm 0.5	0~1	80KS/s
50	\pm 0.1	X	10KS/s
100	\pm 0.05	0~0.1	10KS/s
500	\pm 0.01	X	1KS/s
1000	\pm 0.005	0~0.01	1KS/s

PGL Input Range

Gain	Bipolar(V)	Unipolar(V)	Sampling Rate(Max.)
0.5	\pm 10	X	125KS/s
1	\pm 5	0~10	125KS/s
2	\pm 2.5	0~5	125KS/s
4	\pm 1.25	0~2.5	125KS/s
8	\pm 0.625	0~1.25	125KS/s

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

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Analog Output

- Number of channels: 2 independent
- Type: 12-bit double buffered
- Linearity: 0.006% FS
- Output range:
 - Unipolar: 0~5V, 0~10V, 0~Ext Ref (A-822PG/823PG)
 - Bipolar: ±5V, ±10V, ±Ext Ref (A-823PG)
- External reference: +10V or -10V max
- Output Driving: ±5 mA
- Settling time: 0.6 μs to 0.01% for full scale step

Counter/Timer

- Number of channels: 1
- Resolution: 16-bit
- Compatibility: 5V/TTL
- Internal clock: 2MHz
- External clock: up to 10 MHz
- A/D Pacer: 16-bit counter (A-823PG)
cascaded 32-bit counter (A-822PG)
- Programmable internal timer:
 - 61Hz~1MHz (A-823PG)
 - 0.0047Hz~0.5MHz (A-822PG)

General Specifications

- I/O connector: one 37-pin D-Sub female
two 20-pin ribbon male
- Power requirements: +5V @ 960 mA max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 70°C
- Dimensions: 170 mm x 122 mm

Pin Assignment

CN1

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

CN2

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

CN3

Ext Counter	37	○	○	19	+5V OUT
N.C.	36	○	○	18	N.C.
CGATE1	35	○	○	17	Ext Trig
CGATE0	34	○	○	16	COU0
D/A OUT1	33	○	○	15	D.GND
D/A Ref 0	32	○	○	14	A.GND
D/A OUT0	31	○	○	13	+12V OUT
A.GND	29	○	○	12	D/A Ref 1
A.GND	28	○	○	11	int Ref Out
AI15	27	○	○	10	A.GND
AI14	26	○	○	09	A.GND
AI13	25	○	○	08	AI 7
AI12	24	○	○	07	AI 6
AI11	23	○	○	06	AI 5
AI10	22	○	○	05	AI 4
AI 9	21	○	○	04	AI 3
AI 8	20	○	○	03	AI 2
		○	○	02	AI 1
		○	○	01	AI 0

Ordering Information

Standard

- A-823PGH:** 16-channel 12-bit 125KS/s high gain multi-function board with 2x12-bit bipolar/unipolar analog output
- A-823PGH/S:** A-823PGH with DB-8225
- A-823PGL:** 16-channel 12-bit 125KS/s low gain multi-function board with 2x12-bit bipolar/unipolar analog output
- A-823PGL/S:** A-823PGL with DB-8225
- A-822PGH:** 16-channel 12-bit 125KS/s high gain multi-function board with 2x12-bit unipolar analog output
- A-822PGH/S:** A-822PGH with DB-8225
- A-822PGL:** 16-channel 12-bit 125KS/s low gain multi-function board with 2x12-bit unipolar analog output
- A-822PGL/S:** A-822PGL with DB-8225

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