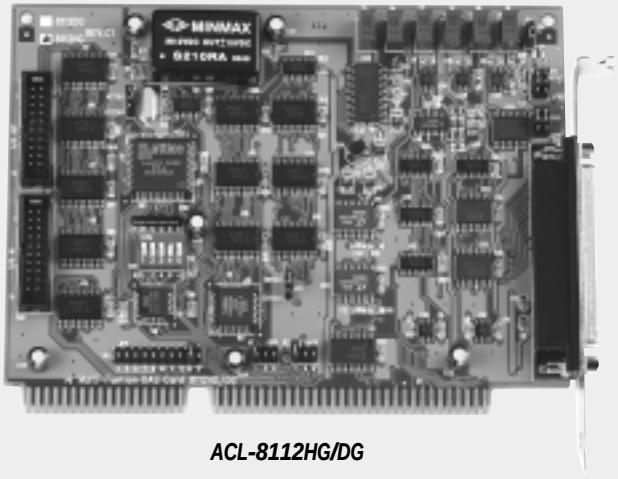
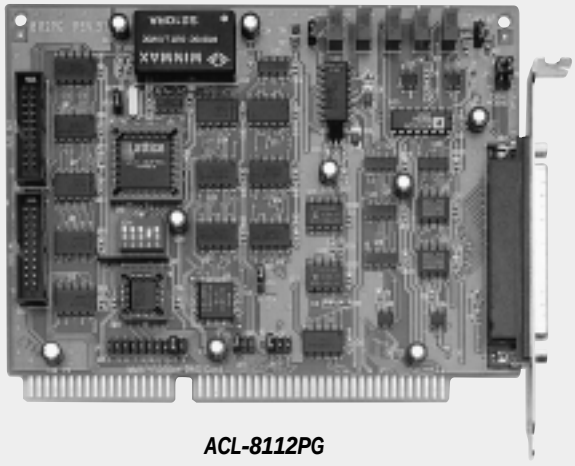
ACL-8112 Series

Enhanced Multi-function Data Acquisition Cards



ACL-8112HG/DG



ACL-8112PG

Features

- 12-bit analog input resolution
- Up to 100k Hz A/D sampling rate
- 16 single-ended or 8 differential analog input channels (ACL-8112PG is 16 single-ended channels)
- Bipolar or unipolar input signals (ACL-8112PG is bipolar input)
- Programmable gain selection
- On-chip sample & hold
- Two 12-bit monolithic multiplying analog output channels
- 16 digital input/output channels
- 3 independent programmable 16-bit down counters
- Three A/D trigger modes: software trigger, programmable pacer trigger, and external pulse trigger
- Integral DC-to-DC converter for stable analog power source
- AT bus with 9 IRQ levels
- Rugged DB-37 connector
- Compact, half size PCB

Introduction

The ACL-8112 HG/DG/PG Series is a family of high speed analog and digital I/O cards for PC/AT compatible computers. These cards are the new generation of industrial standards ACL-812PG and PCL-812PG from ADLink and Advantech. The ACL-8112 Series consists of three products, the ACL-8112HG, ACL-8112DG, and ACL-8112PG. The following table outlines the major data acquisition features of these products.

	ACL-8112HG	ACL-8112DG	ACL-8112PG
Analog Inputs	16 single-ended or 8 differential	16 single-ended or 8 differential	16 single-ended
Maximum Throughput	100k Samples /s	100k Samples /s	100k Samples /s
Resolution	12-bit	12-bit	12-bit
Gain	0.5, 1, 5, 10, 50, 100, 500, 1000	0.5, 1, 2, 4, 8	1, 2, 4, 8, 16
Input mode	Bipolar & Unipolar	Bipolar & Unipolar	Bipolar only
D/A Channel	2-CH, 12-bit	2-CH, 12-bit	2-CH, 12-bit
Digital I/O	16 DI & 16 DO	16 DI & 16 DO	16 DI & 16 DO
Timer/Counter	1 Counter	1 Counter	1 Counter
Comment	High Gain for T/C	Normal Gain	Fully compatible with ACL/PCL-812PG

Specifications

Analog Input (A/D)

- Converter: B.B. ADS774 or equivalent
- Resolution: 12 bits
- Converter type : successive approximation
- Number of input channels
  - 16 single-ended or 8 differential (ACL-8112HG/DG)
  - 16 single-ended (ACL-8112PG)
- Analog input range: (programmable)

ACL-8112DG

- Bipolar: ±10V, ±5V, ±2.5V, ±1.25V, ±0.625V
- Unipolar: 0~10V, 0~5V, 0~2.5V, 0~1.25V

ACL-8112HG

- Bipolar: ±10V, ±5V, ±1V, ±500mV, ±100mV, ±50mV, ±10mV, ±5mV
- Unipolar: 0~10V, 0~1V, 0~0.1V, 0~0.01V

ACL-8112PG

- Bipolar: ±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, ±0.3125V

- Conversion time: 8 μ sec
- Over-voltage protection: Continuous ±35V maximum
- Accuracy

GAIN = 0.5, 1	0.01% of FSR ±1 LSB
GAIN = 5, 10	0.02% of FSR ±1 LSB
GAIN = 50, 100	0.04% of FSR ±1 LSB
GAIN = 500, 1,000	0.04% of FSR ±1 LSB

(for ACL-8112HG)

GAIN = 1	0.01% of FSR ±1 LSB
GAIN = 2, 4	0.02% of FSR ±1 LSB
GAIN = 8, 16	0.04% of FSR ±1 LSB

(for ACL-8112DG/PG)

- Input impedance: 10 MΩ
- Trigger mode: Software, Pacer,and External trigger
- Data transfer: Program control, interrupt, DMA
- Sampling rate: 100 KHz maximum for single channel by DMA data transfer

Analog Output (D/A)

- Numbers of channel: 2 double-buffered analog outputs
- Resolution: 12-bit
- Output range
  - Internal reference: (unipolar) 0~5V or 0~10V
  - External reference: (unipolar) max. +10V or -10V
- Converter: B.B 7541 or equivalent, monolithic multiplying
- Settling time: 30 μ sec
- Linearity: ±1/2 bit LSB
- Output driving capability: ±5mA max.

Digital I/O (DIO)

- Number of channels: 16 TTL compatible inputs and 16 TTL compatible outputs
- Input voltage
  - Low: Min. 0V; Max. 0.8V
  - High: Min. +2.0V
- Input load
  - Low: +0.5V@0.2mA max.
  - High: +2.7V@+20mA max.
- Output voltage
  - Low: Min. 0V; Max. 0.4V
  - High: Min. +2.4V
- Driving capacity
  - Low: Max. +0.5V at 8.0mA(Sink)
  - High: Min. 2.7V at 0.4mA (Source)

Programmable Counter

- Device: 8254 or equivalent
- A/D pacer: 32-bit timer (two 16-bit counters cascaded together) with a 2 MHz time base
- Pacer frequency range: 0.00046 Hz ~ 100KHz
- Counter: One 16-bit counter with a 2 MHz time base

General Specifications

- I/O base address: 16 consecutive address locations
- Connector: 37-pin D-type connector
- IRQ level: (9 levels jumper selectable) 3, 5, 6, 7, 9, 10, 11, 12, 15
- DMA : CH1 or CH3 (jumper selectable)
- Operating temperature: 0˚ ~ 55˚C
- Storage temperature: -20˚ ~ 80˚C
- Humidity: 5 ~95%, non-condensing
- Power rerquirement

  ACL-8112DG/HG
  - +5V@430 mA typical
  - +12V@150 mA typical

  ACL-8112PG
  - +5V@450 mA typical
  - +12V@150 mA typical
- Dimension

  ACL-8112DG/HG: 162 mm x 115 mm

  ACL-8112PG: 163 mm x 123 mm

Termination Boards

- ACLD-8125
- ACLD-9138
- ACLD-9137
- DIN-37D
- ACLD-9182A
- ACLD-9185
- ACLD-9188
- ACLD-9178
- DIN-20P

Ordering Information

ACL-8112HG

Enhanced High Gain Multi-function DAS Card

ACL-8112DG

Enhanced Normal Gain Multi-function DAS Card

ACL-8112PG

Advanced Multi-function DAS Card

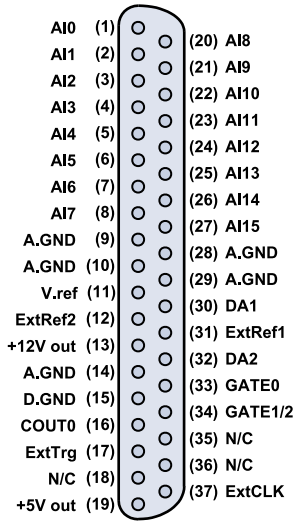
ACL-8112[HG][DG][PG]/25

ACL-8112[HG][DG][PG] + ACLD-8125
(Includes 1m cable ACL-10137-1)

ACL-8112[HG][DG][PG]/38

ACL-8112[HG][DG][PG] + ACLD-9138
(Includes 1m cable ACL-10237-1)

Pin Assignments for the DB-37 Connector of AXL-8112PG



For Advantech PCL-812PG Users

ACL-8112PG is an enhanced and advanced version of the PCL-812PG. It uses a rugged DB-37 connector and shielded and ground-ed cable to replace flat cable, which makes your data acquisition more reliable and accurate.

You will find it is very easy to understand the features and functionality of ACL-8112PG. Due to full hardware and software compati-bility with Advantech's PCL-812PG. These is no need to learn the hardware configura-tion and software register structure, as both register structure and jumper settings are the same as PCL-812PG.