

ACL-8216

16-CH 16-Bit 100 kS/s Multi-Function DAQ Cards

Features

- 16-bit A/D resolution
- Up to 100 kS/s sampling rate
- 16-CH single-ended or 8-CH differential inputs
- Bipolar analog input ranges
- Programmable gains of x1, x2, x4, x8
- Automatic analog input scanning
- DMA for analog inputs
- 2-CH 12-bit multiplying analog outputs
- 16-CH TTL digital inputs & 16-CH TTL digital outputs
- 1-CH 16-bit general purpose timer/counter
- Compact, half-size PCB

- **Operating Systems**
 - Windows 2000/NT/XP/9x
 - DOS
- **Recommended Software**
 - VB/VC++/BCB/Delphi
 - Turbo C/Borland C
- **Drivers Support**
 - ACLS-LVIEW
 - ACLS-DLL/DLL2
 - DOS library



Introduction

ADLINK ACL-8216 is a 16-CH, 16-bit, 100 kS/s multi-function DAQ Card. The ACL-8216 device features flexible configurations on analog inputs. It provides analog inputs with 4 programmable input ranges for bipolar inputs. The A/D on the ACL-8216 device features a sampling rate of up to 100 kS/s with resolution at 16 bits. The device supports automatic analog input scanning, and offers a differential mode for 8-CH analog inputs and maximum noise elimination, as well as single-ended modes for 16-CH analog inputs.

The ACL-8216 also features 2-CH 12-bit analog outputs, 1-CH 16-bit general purpose timer/counter, 16-CH TTL digital and 16-CH TTL digital outputs. ADLINK ACL-8216 delivers cost-effective and reliable data acquisition capabilities and is ideal for a broad variety of applications.

Specifications

Analog Input

- Number of channels:
 - 16 single-ended or 8 differential
- Resolution: 16 bits
- Conversion time: 8 μ s
- Maximum sampling rate: 100 kS/s
- Input signal ranges: (software programmable)

Gain	Bipolar
1	± 10 V
2	± 5 V
4	± 2.5 V
8	± 1.25 V

- Accuracy: 0.003% of FSR ± 1 LSB
- Input coupling: DC
- Overvoltage protection: continuous ± 35 V
- Input impedance: 1 G Ω
- Trigger modes:
 - software, pacer, and external trigger (5 V/TTL compatible)
- Data transfers: polling, interrupt, DMA

Analog Output

- Number of channels: 2 voltage outputs
- Resolution: 12 bits
- Output ranges (software programmable)

Output ranges	
Unipolar	0 to 10 V, 0 to 5 V, 0 to EXTREF

- Output driving capacity: 5 mA max
- Settling time: 30 μ s to 0.5 LSB
- Data transfers: programmed I/O

Digital I/O

- Number of channels: 16 inputs & 16 outputs
- Compatibility: 5 V/TTL
- Data transfers: programmed I/O

General-Purpose Timer/Counter

- Number of channels: 1
- Resolution: 16 bits
- Compatibility: 5 V/TTL
- Base clock available:
 - 2 MHz, external clock to 10 MHz

General Specifications

- I/O connector
 - 37-pin D-sub female
 - 20-pin ribbon male
- Operating temperature: 0 to 55 $^{\circ}$ C
- Storage temperature: -20 to 80 $^{\circ}$ C
- Relative humidity: 5 to 95%, noncondensing
- Power requirements

+5 V	+12 V
420 mA typical	240 mA typical

- Dimensions (not including connectors)
163 mm x 123 mm

Termination Boards

- **DIN-37D**
Termination Board with a 37-pin D-sub Connector and DIN-Rail Mounting (Including One 1-meter ACL-10137 Cable)
- **DIN-20P**
Termination Board with a 20-pin Ribbon Connector and DIN-Rail Mounting (Including One 1-meter ACL-10120 Cable)
- **ACLD-8125**
Termination Board with a 37-pin D-sub Connector and One Cold Junction Temperature Sensor (Including One 1-meter ACL-10137 Cable)
- **ACLD-9137**
General-Purpose Termination Board with a 37-pin D-sub Male Connector
- **ACLD-9138**
General-Purpose Termination Board with a 37-pin D-sub Connector (Including One 1-meter ACL-10237 Cable)
- **ACLD-9178**
General-Purpose Termination Board with Two 20-pin Ribbon Connectors (Including Two 1-meter ACL-10120 Cables)
- **ACLD-9182A**
Termination Board with 16-CH Isolated Digital Inputs (Including One 1-meter ACL-10120 Cable)
- **ACLD-9185**
Termination Board with 16-CH Relay Outputs (Including One 1-meter ACL-10120 Cable)
- **ACLD-9188**
General-Purpose Termination Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector (Including Two 1-meter ACL-10120 Cables)

Pin Assignment

CN1: Digital Output				CN2: Digital Input			
DO0	1 2	DO1		DI0	1 2	DI1	
DO2	3 4	DO3		DI2	3 4	DI3	
DO4	5 6	DO5		DI4	5 6	DI5	
DO6	7 8	DO7		DI6	7 8	DI7	
DO8	9 10	DO9		DI8	9 10	DI9	
DO10	11 12	DO11		DI10	11 12	DI11	
DO12	13 14	DO13		DI12	13 14	DI13	
DO14	15 16	DO15		DI14	15 16	DI15	
GND	17 18	GND		GND	17 18	GND	
+5Vout	19 20	+12Vout		+5Vout	19 20	+12Vout	

CN3: Analog Input/Output & Counter/Timer

AI0 (AIH0)	1 20	AI8 (AILO)	
AI1 (AIH1)	2 21	AI9 (AIL1)	
AI2 (AIH2)	3 22	AI10 (AIL2)	
AI3 (AIH3)	4 23	AI11 (AIL3)	
AI4 (AIH4)	5 24	AI12 (AIL4)	
AI5 (AIH5)	6 25	AI13 (AIL5)	
AI6 (AIH6)	7 26	AI14 (AIL6)	
AI7 (AIH7)	8 27	AI15 (AIL7)	
AGND	9 28	AGND	
AGND	10 29	AGND	
VREF	11 30	DA1	
ExtRef1	12 31	ExtRef2	
+12Vout	13 32	DA2	
AGND	14 33	GATE0	
DGND	15 34	GATE	
COU0T0	16 35	N/C	
ExtTrg	17 36	N/C	
N/C	18 37	EXTCLK	
+5Vout	19		

Ordering Information

- **ACL-8216**
16-CH 16-Bit 100 kS/s Multi-Function DAQ Card

- 1 Software Solutions
- 2 PXI/CompactPCI Platforms
- 3 PXI-Based Instruments
- 4 PXI/CompactPCI Modules
- 5 PCI DAQ Cards
- 6 PCI DIO Cards
- 7 PC/104-Plus Products
- 8 ISA DAS/DIO Cards
- 9 Wiring Termination Boards
- 10 Motion Control Cards
- 11 Machine Vision Products
- 12 Remote I/O Modules