

PCI-9111 Series

16-CH 12/16-Bit 100 kS/s Low-Cost Multi-Function DAQ Cards



Introduction

ADLINK's PCI-9111 series are 16-CH, 100 kS/s low-cost multi-function DAQ cards that feature flexible analog input configurations. An RC filter is implemented on each A/D input channel to allow attenuation or filtering of the input signals. The PCI-9111 series provide analog inputs with 5 programmable input ranges for bipolar inputs. The PCI-9111 series also support automatic analog input scanning. The PCI-9111DG provides 12-bit A/D resolution while the PCI-9111HR provides 16-bit A/D resolution.

The PCI-9111 series also feature 1-CH 12-bit analog output, 16-CH TTL digital inputs and 16-CH TTL digital outputs. ADLINK's PCI-9111 series delivers cost-effective and reliable data acquisition capabilities, and is ideal for a broad variety of applications.

Features

- Supports a 32-bit 5 V PCI bus
- 12-bit A/D resolution (PCI-9111DG)
- 16-bit A/D resolution (PCI-9111HR)
- 16-CH single-ended analog inputs
- Up to 100 kS/s sampling rate
- Onboard 1 k-sample A/D FIFO
- Programmable gains of x1, x2, x4, x8, x16
- Bipolar analog input ranges
- Onboard low-pass filtering capability for analog inputs
- Automatic analog inputs scanning
- One 12-bit multiplying analog outputs
- 16-CH TTL digital inputs and 16-CH TTL digital outputs
- 4-CH TTL extended digital inputs and 4-CH TTL extended digital outputs
- Compact, half-size PCB
- Operating Systems
 - Windows 7/Vista/XP/2000/2003 Server
 - Linux
- Recommended Software
 - AD-Logger
 - VB.NET/VC.NET/VB/VC++/BCB/Delphi
 - DAQBench
- Driver Support
 - DAQPilot for LabVIEW™
 - DAQ-MTLB for MATLAB®
 - PCIS-DASK for Windows
 - PCIS-DASK/X for Linux

Specifications

Analog Input

- Number of channels: 16 single-ended
- Resolution
 - 12 bits (PCI-9111DG)
 - 16 bits (PCI-9111HR)
- Conversion time: 8 μs
- Maximum sampling rate: 100 kS/s
- Input signal ranges (software programmable)

Gain	Input Range
	Bipolar
1	±10 V
2	±5 V
4	±2.5 V
8	±1.25 V
16	±0.625 V

Accuracy

Gain	Accuracy
1, 2	0.01% of FSR ± 1 LSB
4, 8	0.02% of FSR ± 1 LSB
16	0.04% of FSR ± 1 LSB

- Input coupling: DC
- Overvoltage protection: continuous ±35 V
- Input impedance: 10 MΩ
- Trigger modes: software, pacer, and external trigger (5 V/TTL compatible)
- FIFO buffer size: 1 k samples
- Data transfers: polling, interrupt

Analog Output

- Number of channels: 1 voltage output (NO s)
- Resolution: 12 bits
- Output ranges (jumper selectable)

Output Range	
Bipolar	±10 V
Unipolar	0 to 10 V

- Output driving capacity: ±5 mA max
- Settling time: 30 μs
- Data transfers: programmed I/O

Digital I/O

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

General Specifications

- I/O connector
 - 37-pin D-sub female
 - 20-pin ribbon male x 2
- Operating temperature: 0°C to 60°C
- Storage temperature: -20°C to 80°C
- Relative humidity: 5% to 95%, non-condensing
- Power requirements

Device	+5 V
PCI-9111DG	570 mA typical
PCI-9111HR	570 mA typical

- Dimensions (not including connectors)
175 mm x 107 mm

Terminal Boards & Cables

- **DIN-37D-01***
Terminal Board with One 37-pin D-sub Connector and DIN-Rail Mounting
- **DIN-20P-01***
Terminal Board with One 20-pin Ribbon Connector and DIN-Rail Mounting
- **ACLD-9137-01**
General-Purpose Terminal Board with One 37-pin D-sub Male Connector
- **ACLD-9188-01***
General-Purpose Terminal Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector
- **ACLD-9182A-01***
Terminal Board with 16-CH Isolated Digital Inputs
- **ACLD-9185-01***
Terminal Board with 16-CH Relay Outputs

* Cables are not included. For information on mating cables, refer to P2-61/62

Ordering Information

- **PCI-9111DG**
16-CH 12-Bit 100 kS/s Low-Cost Multi-Function DAQ Card
- **PCI-9111HR**
16-CH 16-Bit 100 kS/s Low-Cost Multi-Function DAQ Card

Pin Assignment

CN3			CN1		
AI0	1	20 AI8	DI0	1	2 DI1
AI1	2	21 AI9	DI2	3	4 DI3
AI2	3	22 AI10	DI4	5	6 DI5
AI3	4	23 AI11	DI6	7	8 DI7
AI4	5	24 AI12	DI8	9	10 DI9
AI5	6	25 AI13	DI10	11	12 DI11
AI6	7	26 AI14	DI12	13	14 DI13
AI7	8	27 AI15	DI14	15	16 DI15
A.GND	9	28 A.GND	GND	17	18 GND
A.GND	10	29 A.GND	+5Vout	19	20 +12Vout
N/C	11	30 DA Out			
PreTrg	12	31 EDI0			
+12Vout	13	32 EDI1	DO0	1	2 DO1
D.GND	14	33 EDI2	DO2	3	4 DO3
D.GND	15	34 EDI3	DO4	5	6 DO5
ExtTrg	16	35 EDO0	DO6	7	8 DO7
EDO1	17	36 EDO2	DO8	9	10 DO9
EDO3	18	37 N/C	DO10	11	12 DO11
+5Vout	19		DO12	13	14 DO13
			DO14	15	16 DO15
			GND	17	18 GND
			+5Vout	19	20 +12Vout