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

AI0	1	20	AI8
AI1	2	21	AI9
AI2	3	22	AI10
AI3	4	23	AI11
AI4	5	24	AI12
AI5	6	25	AI13
AI6	7	26	AI14
AI7	8	27	AI15
A.GND	9	28	A.GND
A.GND	10	29	A.GND
N/C	11	30	DA Out
PreTrg	12	31	EDI0
+12Vout	13	32	EDI1
D.GND	14	33	EDI2
D.GND	15	34	EDI3
ExtTrg	16	35	EDO0
EDO1	17	36	EDO2
EDO3	18	37	N/C
+5Vout	19		

CN1

DI0	1	2	DI1
DI2	3	4	DI3
DI4	5	6	DI5
DI6	7	8	DI7
DI8	9	10	DI9
DI10	11	12	DI11
DI12	13	14	DI13
DI14	15	16	DI15
GND	17	18	GND
+5Vout	19	20	+12Vout

CN2

DO0	1	2	DO1
DO2	3	4	DO3
DO4	5	6	DO5
DO6	7	8	DO7
DO8	9	10	DO9
DO10	11	12	DO11
DO12	13	14	DO13
DO14	15	16	DO15
GND	17	18	GND
+5Vout	19	20	+12Vout

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