PCI-9111 Series

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

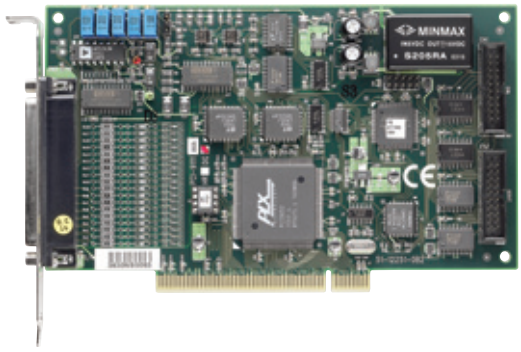
Features

- 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 Vista/XP/2000/2003
- Linux

Recommended Software
- VB.NET/VC.NET/VB/ VC++/BCB/Delphi
- DAQBench

Driver Support
- DAQPilot for Windows
- DAQ-LVIEW PnP for LabVIEW™
- DAQ-MTLB for MATLAB®
- PCIS-DASK for Windows
- PCIS-DASK/X for Linux



Introduction

ADLINK PCI-9111 series are 16-CH, 100 kS/s low-cost multi-function DAQ card. The PCI-9111 series feature flexible configurations on analog inputs. A RC filter is implemented on each A/D input channel for user to attenuate or filter input signal. 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. PCI-9111DG provides 12-bit A/D resolution while 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 PCI-9111 series deliver 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
- 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 to 60 °C
- Storage temperature: -20 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

Termination Boards

- **DIN-37D-01***
  Termination Board with one 37-pin D-sub Connector and DIN-Rail Mounting
- **DIN-20P-01***
  Termination Board with one 20-pin Ribbon Connector and DIN-Rail Mounting
- **ACLD-9137-01**
  General-Purpose Termination Board with one 37-pin D-sub Male Connector
- **ACLD-9188-01***
  General-Purpose Termination Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector
- **ACLD-9182A-01***
  Termination Board with 16-CH Isolated Digital Inputs
- **ACLD-9185-01***
  Termination Board with 16-CH Relay Outputs
- **ACLD-8125-01***
  Termination Board with one 37-pin D-sub Connector and One Cold Junction Temperature Sensor

* Cables are not included. For information on mating cables, refer to Section 12.

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

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