

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
- On-board 1 k-sample A/D FIFO
- Programmable gains of x1, x2, x4, x8, x16
- Bipolar analog input ranges
- On-board 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 2000/NT/XP/9x
- DOS
- Red Hat Linux
- Windows CE (call for availability)

Recommended Software

- VB/VC++/BCB/Delphi
- DAQBench

Driver Support

- PCIS-DASK for Windows 2000/NT/XP/9x
- PCIS-DASK/X for Red Hat Linux
- PCIS-OCX ActiveX controls
- PCIS-LVIEW/PnP for LabVIEW **NEW!**



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 μ s
- 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 M Ω
- 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 outputs
- 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 μ s
- 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 $^{\circ}$ C

- Storage temperature: -20 to 80 $^{\circ}$ C
- Relative humidity: 5 to 95%, noncondensing
- 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

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-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-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)

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-9125

Termination Board with a 37-pin D-sub Connector and One Cold Junction Temperature Sensor (Including One 1-meter ACL-10137 Cable)

Pin Assignment

CN3

| | | | |
|---------|----|----|--------|
| A10 | 1 | 20 | A18 |
| A11 | 2 | 21 | A19 |
| A12 | 3 | 22 | A110 |
| A13 | 4 | 23 | A111 |
| A14 | 5 | 24 | A112 |
| A15 | 6 | 25 | A113 |
| A16 | 7 | 26 | A114 |
| A17 | 8 | 27 | A115 |
| A.GND | 9 | 28 | A.GND |
| A.GND | 10 | 29 | A.GND |
| N/C | 11 | 30 | DA Out |
| PreTrg | 12 | 31 | ED10 |
| +12Vout | 13 | 32 | ED11 |
| D.GND | 14 | 33 | ED12 |
| D.GND | 15 | 34 | ED13 |
| 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