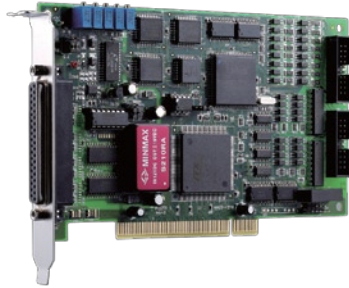


# PCI-9114 Series

## 32-CH 16-Bit Up to 250 kS/s Multi-Function DAQ Cards



### Introduction

ADLINK's PCI-9114 series are 32-CH, 16-bit, high-resolution multi-function DAQ cards. The PCI-9114 device features flexible configurations on analog input. The devices are divided into 2 kinds: normal gain version and high gain version. Both versions provide 4 programmable input ranges for bipolar and unipolar inputs. The A/D on the PCI-9114DG device features a sampling rate of 100 kS/s with resolution at 16 bits, while PCI-9114A-DG/HG device features a sampling rate of up to 250 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 PCI-9114 also features 1-CH 16-bit general-purpose timer/counter, 16-CH TTL isolated digital inputs and 16-CH TTL isolated digital outputs. ADLINK PCI-9114 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
- 16-bit A/D resolution
- Up to 100 kS/s sampling rate (PCI-9114DG)
- Up to 250 kS/s sampling rate (PCI-9114A-DG and PCI-9114A-HG)
- 32-CH single-ended or 16-CH differential analog inputs
- Bipolar or unipolar analog input ranges
- Onboard 1 k-sample A/D FIFO
- Programmable gains:
  - x1, x2, x4, x8 (PCI-9114DG and PCI-9114A-DG)
  - x1, x10, x100 (PCI-9114A-HG)
- Automatic analog inputs scanning
- 16-CH isolated digital inputs and 16-CH isolated digital outputs
- 2500 VRMS optical isolation for digital inputs and outputs
- 1-CH 16-bit general-purpose timer/counter
- +12 V and -12 V power available on the 37-pin D-sub connector
- Onboard resettable fuses for power output protection
- 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
- Drivers Support
  - DAQPilot for LabVIEW™
  - DAQ-MTLB for MATLABR
  - PCIS-DASK for Windows
  - PCIS-DASK/X for Linux

### Accuracy

Device	Gain	Input Range
PCI-9114DG	1	0.01% of FSR ± 1 LSB
	2,4	0.02% of FSR ± 1 LSB
	8	0.04% of FSR ± 1 LSB
PCI-9114A-HG	1, 10	0.01% of FSR ± 1 LSB
	100	0.02% of FSR ± 1 LSB

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

### Isolated Digital Input

- Number of channels: 16
- Maximum input range: 24 V, non-polarity
- Digital logic levels
  - 0 - 24 V, non-polarity
  - Input high voltage: 5 - 24 V
  - Input low voltage: 0 - 1.5 V
- Input resistance: 2.4 KΩ @ 0.5 W
- Isolation voltage: 2500 VRMS
- Data transfers: programmed I/O

### Isolated Digital Output

- Number of channels: 16
- Output type: open emitter Darlington transistors
- Sink current
  - 350 mA for one channel @ 100% duty
  - 260 mA for all channels @ 10% duty
- Power dissipation: Max. 1.47 W per chip (8 DO channels)
- Supply voltage: 5-35 V
- Isolation voltage: 2500 VRMS
- Data transfers: programmed I/O

### Power Output

- Output voltage: +12 V and -12 V
- Resettable fuse protection: 500 mA

### General-Purpose Timer/Counter

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

### General Specifications

- I/O connector
  - 37-pin D-sub female
  - 20-pin ribbon male x 2
- Operating temperature: 0°C to 55°C
- Storage temperature: -20°C to 80°C
- Relative humidity: 5% to 95%, non-condensing
- Power requirements
 

+5 V	+12 V
600 mA typical	100 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

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

### Ordering Information

#### ■ PCI-9114DG

32-CH 16-Bit 100 kS/s Normal-Gain Multi-Function DAQ Card

#### ■ PCI-9114A-DG

32-CH 16-Bit 250 kS/s Normal-Gain Multi-Function DAQ Card

#### ■ PCI-9114A-HG

32-CH 16-Bit 250 kS/s High-Gain Multi-Function DAQ Card

### Pin Assignment

CN1		CN2				
+12Vout	1	GND	DI_0	1	2	DI_8
-12Vout	2	(AIL15) AI31	DI_1	3	4	DI_9
AI15 (AIH15)	3	(AIL14) AI30	DI_2	5	6	DI_10
AI14 (AIH14)	4	(AIL13) AI29	DI_3	7	8	DI_11
AI13 (AIH13)	5	(AIL12) AI28	DI_4	9	10	DI_12
AI12 (AIH12)	6	(AIL11) AI27	DI_5	11	12	DI_13
AI11 (AIH11)	7	(AIL10) AI26	DI_6	13	14	DI_14
AI10 (AIH10)	8	(AIL9) AI25	DI_7	15	16	DI_15
AI9 (AIH9)	9	(AIL8) AI24	EICOM1	17	18	EICOM3
AI8 (AIH8)	10	AGND	EICOM2	19	20	EICOM4
AGND	11	(AIL7) AI23	DO_0	1	2	DO_8
AI7 (AIH7)	12	(AIL6) AI22	DO_1	3	4	DO_9
AI6 (AIH6)	13	(AIL5) AI21	DO_2	5	6	DO_10
AI5 (AIH5)	14	(AIL4) AI20	DO_3	7	8	DO_11
AI4 (AIH4)	15	(AIL3) AI19	DO_4	9	10	DO_12
AI3 (AIH3)	16	(AIL2) AI18	DO_5	11	12	DO_13
AI2 (AIH2)	17	(AIL1) AI17	DO_6	13	14	DO_14
AI1 (AIH1)	18	(AIL0) AI16	DO_7	15	16	DO_15
AI0 (AIH0)	19		EOGND	17	18	EOGND
			VDD	19	20	VDD

### Specifications

#### Analog Input

- Number of channels: 32 single-ended or 16 differential
- Resolution: 16 bits
- Conversion time:
  - 10 μs (PCI-9114DG)
  - 4 μs (PCI-9114A-DG & PCI-9114A-HG)
- Maximum sampling rate

Device	Sampling rate
PCI-9114DG	100 kS/s
PCI-9114A-DG PCI-9114A-HG	250 kS/s

- Input ranges (software programmable)

Device	Gain	Input Range
PCI-9114DG	1	±10 V
	2	±5 V
	4	±2.5 V
PCI-9114A-DG	8	±1.25 V
	1	±10 V
	10	±1 V
PCI-9114A-HG	100	±0.1 V