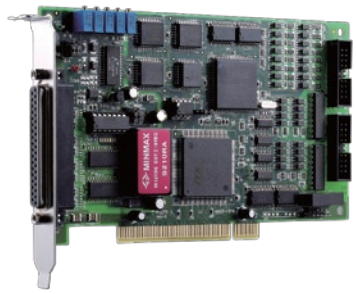
PCI-9114 Series

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 for16-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

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

- Accuracy

Device	Gain	Input Range
PCI-9114DG PCI-9114A-DG	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

+12Vout	1	20	GND
-12Vout	2	21	(AIL15) AI31
AI15 (AIH15)	3	22	(AIL14) AI30
AI14 (AIH14)	4	23	(AIL13) AI29
AI13 (AIH13)	5	24	(AIL12) AI28
AI12 (AIH12)	6	25	(AIL11) AI27
AI11 (AIH11)	7	26	(AIL10) AI26
AI10 (AIH10)	8	27	(AIL9) AI25
AI9 (AIH9)	9	28	(AIL8) AI24
AI8 (AIH8)	10	29	AGND
AGND	11	30	(AIL7) AI23
AI7 (AIH7)	12	31	(AIL6) AI22
AI6 (AIH6)	13	32	(AIL5) AI21
AI5 (AIH5)	14	33	(AIL4) AI20
AI4 (AIH4)	15	34	(AIL3) AI19
AI3 (AIH3)	16	35	(AIL2) AI18
AI2 (AIH2)	17	36	(AIL1) AI17
AI1 (AIH1)	18	37	(AIL0) AI16
AI0 (AIH0)	19		

CN2

DI_0	1	2	DI_8
DI_1	3	4	DI_9
DI_2	5	6	DI_10
DI_3	7	8	DI_11
DI_4	9	10	DI_12
DI_5	11	12	DI_13
DI_6	13	14	DI_14
DI_7	15	16	DI_15
EICOM1	17	18	EICOM3
EICOM2	19	20	EICOM4

CN3

DO_0	1	2	DO_8
DO_1	3	4	DO_9
DO_2	5	6	DO_10
DO_3	7	8	DO_11
DO_4	9	10	DO_12
DO_5	11	12	DO_13
DO_6	13	14	DO_14
DO_7	15	16	DO_15
EOGND	17	18	EOGND
VDD	19	20	VDD

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