

PCI-9114 Series

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



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
- **Supported Operating System**
 - Windows 7/8 x64/x86, Linux
- **Driver and SDK**
 - LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET
- **Software Utility**
 - AD-Logger

Specifications

Analog Input

- Number of channels: 32 single-ended or 16 differential
- Resolution: 16 Bit
- Conversion time:
 - 10 μ s (PCI-9114DG)
 - 4 μ s (PCI-9114A-DG and 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 $\pm$ 1 LSB
	2, 4	0.02% of FSR $\pm$ 1 LSB
	8	0.04% of FSR $\pm$ 1 LSB
PCI-9114A-HG	1, 10	0.01% of FSR $\pm$ 1 LSB
	100	0.02% of FSR $\pm$ 1 LSB

- Input coupling: DC
- Overvoltage protection: continuous ± 35 V
- Input impedance: 1 G Ω
- Trigger modes: software, 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 K Ω @ 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 Bit
- 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 (32°F to 131°F)
- Storage temperature: -20°C to 80°C (-4°F to 176°F)
- 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 (6.82" x 4.17")

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

* Cables are not included. For information on mating cables, refer to P3-48/49.

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	20	GND	DI_0	1	2	DI_8
-12Vout	2	21	(AI15) AI31	DI_1	3	4	DI_9
A15 (AIH15)	3	22	(AI14) AI30	DI_2	5	6	DI_10
A14 (AIH14)	4	23	(AI13) AI29	DI_3	7	8	DI_11
A13 (AIH13)	5	24	(AI12) AI28	DI_4	9	10	DI_12
A12 (AIH12)	6	25	(AI11) AI27	DI_5	11	12	DI_13
A11 (AIH11)	7	26	(AI10) AI26	DI_6	13	14	DI_14
A10 (AIH10)	8	27	(AI9) AI25	DI_7	15	16	DI_15
A19 (AIH9)	9	28	(AI8) AI24	EICOM1	17	18	EICOM3
A18 (AIH8)	10	29	AGND	EICOM2	19	20	EICOM4
AGND	11	30	(AI7) AI23				
A17 (AIH7)	12	31	(AI6) AI22	DO_0	1	2	DO_8
A16 (AIH6)	13	32	(AI5) AI21	DO_1	3	4	DO_9
A15 (AIH5)	14	33	(AI4) AI20	DO_2	5	6	DO_10
A14 (AIH4)	15	34	(AI3) AI19	DO_3	7	8	DO_11
A13 (AIH3)	16	35	(AI2) AI18	DO_4	9	10	DO_12
A12 (AIH2)	17	36	(AI1) AI17	DO_5	11	12	DO_13
A11 (AIH1)	18	37	(AI0) AI16	DO_6	13	14	DO_14
A10 (AIH0)	19			DO_7	15	16	DO_15
				EOGND	17	18	EOGND
				VDD	19	20	VDD