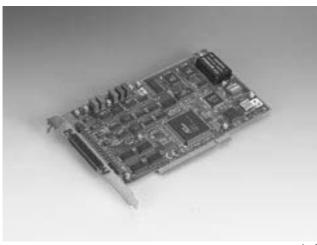
PCI-1710 PCI-1710HG

100 kS/s, 12-bit, PCI-bus Multifunction Card 100 kS/s, 12-bit, PCI-bus, High Gain, Multifunction Card



Features

- 16 single-ended, 8 differential or a combination of analog inputs
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain for each input channel
- Free combination of single-ended and differential inputs
- On-board 4096 samples FIFO buffer
- Two 12-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Programmable pacer/counter
- BoardID™ Switch
- Short circuit protection

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Introduction

The PCI-1710 Series are multifunction cards for the PCI bus. Their advanced circuit design provides higher quality and more functions, including the five most desired measurement and control functions: 12-bit A/D conversion, D/A conversion, digital input, digital output, and counter/timer.

Specifications

Analog Input

• **Channels** 16 single-ended/ 8 differential (SW programmable)

Resolution 12 bits
 Max. Sampling Rate* 100 kS/s
 FIFO Size 4096 samples
 Overvoltage Protection ±30Vp-p
 Input Impedance 1 GΩ

Sampling Modes Software, onboard programmable pacer, or external

Input Range (V, software programmable)

PCI-1710/1710L							
Bipolar	±10	±5	±2.5	±1.25	±0.625		
Unipolar	-	0~10	0~5	0 ~ 2.5	0 ~ 1.25		
Accuracy (% of FSR ±1LSB)	0.01	0.01	0.02	0.02	0.04		

PCI-1710HG/1710HGL								
Bipolar	±10	±5	±1	±0.5	±0.1	±0.05	±0.01	±0.005
Unipolar	-	0~10	-	0~1	-	0~0.1	-	0~0.01
Accuracy (% of FSR +1LSR)	0.01	0.01	0.02	0.02	0.02	0.02	0.04	0.04

*Note:

The sampling rate and throughput depends on the computer hardware architecture and software environment. The rates may vary due to programming language, code efficiency, CPU utilization and so on.

Analog Output (PCI-1710/1710HG only)

Output Range (V, software programmable)

Internal Reference	Unipolar	0 ~ +5 V @ -5 V
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External Reference		$0 \sim +x \vee @ -x \vee (-10 \le x \le 10)$

Slew Rate 10 V/ms
 Driving Capability 3 mA
 Operation Mode Software polling

■ Accuracy INLE: ±1/2 LSB, DNLE: ±1/2 LSB

Digital Input

Channels 16
 Compatibility 5 V/TTL
 Input Voltage Logic 0: 0.8 V max.

Logic 1: 2.0 V min.

Digital Output

Channels 16Compatibility 5 V/TTL

Output Voltage
 Logic 0: 0.4 V max.
 Logic 1: 2.4 V min.

Output Capability
 Sink: 8.0 mA @ 0.8 V
 Source: -0.4 mA @ 2.0 V

Pacer/Counter

Channels 1
 Resolution 16 bits
 Compatibility 5 V/TTL
 Max. Input Frequency 1 MHz

Specifications Continued

General

Bus Type PCI 2.2
 I/O Connector 1 x SCSI 68-F

Dimensions (L x H) 175 x 100 mm (6.9" x 3.9")
 Power Consumption Typical: 5 V @ 850 mA Max: 5 V @ 1.0 A

• Operating Temperature $0 \sim 60^{\circ}$ C (32 $\sim 140^{\circ}$ F) (refer to IEC 68-2-1, 2)

• Storing Temperature $-20 \sim 70^{\circ} \text{ C } (-4 \sim 158^{\circ} \text{ F})$

• **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

driver CD-ROM. (cable not included)

• PCI-1710L 100 kS/s, 12-bit Multifunction Card w/o AO, user's

manual and driver CD-ROM. (cable not included)

 PCI-1710HG
 100 kS/s, 12-bit High-Gain Multifunction Card, user's manual and driver CD-ROM. (cable not included)

PCI-1710HGL
 100 kS/s, 12-bit High-Gain Multifunction Card w/o
 AO, user's manual and driver CD-ROM. (cable not

included)

PCLD-8710 Industrial Wiring Terminal Board with CJC circuit for

PNN rail mounting (rable not included).

DIN-rail mounting (cable not included)

 PCLD-8710BNC
 Industrial Wiring Terminal Board with CJC circuit and BNC connectors for DIN-rail mounting (cable not

included)

• **PCL-10168** 68-pin SCSI-II cable with male connectors on both

ends and special shielding for noise reduction, 1 m.

PCL-10168-2
 68-pin SCSI-II cable with male connectors on both ends and special shielding for noise reduction, 2 m.

• ADAM-3968 68-pin SCSI-II Wiring Terminal Board for DIN-rail

MountingFeature Details

Feature Details

PCI-1710 series provide specific functions for different user requirements:

PCI-1710 100 kS/s, 12-bit Multifunction Card

PCI-1710L 100 kS/s, 12-bit Multifunction Card w/o AO

PCI-1710HG 100 kS/s, 12-bit High-Gain Multifunction Card

PCI-1710HGL 100 kS/s, 12-bit High-Gain Multifunction Card w/o AO

Mixed Single-ended or Differential Analog Inputs

PCI-1710 and PCI-1710HG feature an automatic channel/gain scanning circuit. The circuit, rather than your software, controls multiplexer switching during sampling. The on-board SRAM stores different gain values and configurations for each channel. This design lets you perform multi-channel high-speed sampling (up to 100 KHz) with different gains for each channel and allows free combination of single-ended and differential inputs.

On-board FIFO (First In First Out) Memory

PCI-1710, PCI-1710L, PCI-1710HG and PCI-1710HGL have an on-board FIFO buffer that can store up to 4 K A/D samples. PCI-1710 and PCI-1710HG generate an interrupt when the FIFO is half full. This feature provides continuous high-speed data transfer and more predictable performance on Windows systems.

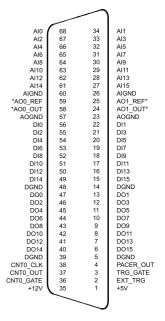
On-board Programmable Counter

The PCI-1710/1710/1710HG/1710HGL provides a programmable counter to generate a pacer trigger for the A/D conversion. The counter chip is an 82C54 or equivalent, which includes three 16-bit counters on a 10 MHz clock. One counter is used as an event counter for counting events coming from the input channels. The other two are cascaded together to make a 32-bit timer for a pacer trigger.

Special Shielded Cable for Noise Reduction

The PCL-10168 shielded cable is specially designed for the PCI-1710/1710HG to reduce noise in the analog signal lines. Its wires are all twisted pairs, and the analog lines and digital lines are separately shielded, providing minimal cross talk between signals and great protection against EMI/EMC problems.

Pin Assignments



^{*:} Pins 23~25 and pins 57~59 are not defined for PCI-1710L/1710HGL

Software

IDDC

TPC

FPM

ATM & AWS

DA&C

cPCI

ADAM-3000

Motion Control

ICOM

ADAM-4000

ADAM-5000

ADAM-8000