

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
- Automatic channel/gain scanning
- Onboard FIFO memory (4096 samples)
- Two 12-bit analog output channels
- 16 digital inputs and 16 digital outputs
- Onboard programmable counter
- BoardID™ switch

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** $\pm 30V_p-p$
- **Input Impedance** 1 $G\Omega$
- **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 $\pm 1LSB$)	0.1	0.1	0.2	0.2	0.4

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 $\pm 1LSB$)	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.4

*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)

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static update
- **Output Range** (V, software programmable)

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

- **Slew Rate** 10 V/ms
- **Driving Capability** 3 mA
- **Operation Mode** Software polling
- **Accuracy** INLE: $\pm 1/2$ LSB, DNLE: $\pm 1/2$ 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** 16
- **Compatibility** 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 V2.2
- **I/O Connector** SCSI-68P female x 1
- **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 ~ 60° C (32 ~ 140° F) (refer to IEC 68-2-1, 2)
- **Storing Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storing Humidity** 5 ~ 95% RH non-condensing (refer to IEC 68-2-3)

Ordering Information

- **PCI-1710** 100 kS/s, 12-bit multifunction card
- **PCI-1710L** 100 kS/s, 12-bit multifunction card without AO
- **PCI-1710HG** 100 kS/s, 12-bit high-gain multifunction card
- **PCI-1710HGL** 100 kS/s, 12-bit high-gain multifunction card without AO
- **PCLD-8710** SCSI-68 wiring terminal w/CJC, DIN-rail mount
- **PCLD-8710BNC** SCSI-68 wiring terminal w/CJC and BNC connectors, DIN-rail mount
- **PCL-10168-1** SCSI-68 Shielded Cable, 1 m
- **PCL-10168-2** SCSI-68 Shielded Cable, 2 m
- **ADAM-3968** SCSI-68 wiring terminal, DIN-rail mount

Pin Assignments

AI0	68	34	AI1
AI2	67	33	AI3
AI4	66	32	AI5
AI6	65	31	AI7
AI8	64	30	AI9
AI10	63	29	AI11
AI12	62	28	AI13
AI14	61	27	AI15
AIGND	60	26	AIGND
AO0_REF	59	25	AO1_REF
AO0_OUT	58	24	AO1_OUT
AOGND	57	23	AOGND
DI0	56	22	DI1
DI2	55	21	DI3
DI4	54	20	DI5
DI6	53	19	DI7
DI8	52	18	DI9
DI10	51	17	DI11
DI12	50	16	DI13
DI14	49	15	DI15
DGND	48	14	DGND
DO0	47	13	DO1
DO2	46	12	DO3
DO4	45	11	DO5
DO6	44	10	DO7
DO8	43	9	DO9
DO10	42	8	DO11
DO12	41	7	DO13
DO14	40	6	DO15
DGND	39	5	DGND
CNT0_CLK	38	4	PACER_OUT
CNT0_OUT	37	3	TRG_GATE
CNT0_GATE	36	2	EXT_TRG
+12V	35	1	+5V

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