

# PCI-E-1810

## 800 kS/s, 12-Bit, 16-Ch PCI Express Multifunction DAQ Card



### Features

- 16 analog inputs, up to 800 kS/s, 12-bit resolution
- 2 analog outputs, up to 500 kS/s, 12-bit resolution
- Supports digital and analog triggers
- 24 programmable digital I/O lines
- Two 32-bit programmable counter/timers
- Onboard FIFO memory (4,000 samples)
- Automatic channel/gain scanning

### Introduction

PCI-E-1810 is a multifunction PCI Express card that includes digital I/O, analog I/O, and counter functions. The card also features a 800 kS/s 12-bit A/D converter and supports analog triggers for A/D data acquisition.

### Specifications

#### Analog Input

- **Channels** Single end 16  
Differential 8
- **Resolution** 12 bits
- **Sample Rate** Single channel 800 kS/s max.  
Multiple channels 500 kS/s max.

Note: The sampling rate of each channel is influenced by the number of used channels. For example, if 4 channels are used, the sampling rate will be  $500k/4 = 125$  kS/s per channel.

- **Trigger Reference** Digital and analog triggers
- **Trigger Mode** Start, Delayed Start  
Stop, Delayed Stop
- **FIFO Size** 4,000 samples
- **Overvoltage Protection** 30 Vp-p
- **Input Impedance** 1 G $\Omega$
- **Sampling Modes** Software and external clock
- **Input Range** Software programmable

Gain	0.5	1	2	4	8
<b>Bipolar</b>	$\pm 10V$	$\pm 5$	$\pm 2.5$	$\pm 1.25$	$\pm 0.625$
<b>Unipolar</b>	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
<b>Absolute Accuracy (% of FSR)*</b>	0.1	0.1	0.2	0.2	0.4

#### Analog Output

- **Channels** 2
- **Resolution** 12 bits
- **Output Rate** Static software polling  
500 kS/s max.
- **Output Range** Software programmable

Internal Reference	Unipolar	0 ~ 5 V 0 ~ 10 V
	Bipolar	-5 V ~ 5 V -10 V ~ 10 V
<b>External Reference</b>	0 ~ +x V @ -x V (-10 $\leq$ x $\leq$ 10)	

- **Slew Rate** 20 V/ $\mu$ s
- **Driving Capability** 5 mA
- **Operation Mode** Static update, waveform generation
- **Accuracy** INLE:  $\pm 1$  LSB, DNLE:  $\pm 1$  LSB

#### Digital I/O

- **Channels** 24
- **Compatibility** 5 V/TTL
- **Input Voltage** Logic 0: 0.8 V max.  
Logic 1: 2.0 V min.
- **Output Voltage** Logic 0: 0.8 V max.  
Logic 1: 2.0 V min.
- **Output Capability** Sink: 15 mA @ 0.8 V  
Source: 15 mA @ 2.0 V

#### Counter

- **Channels** 2
- **Resolution** 32 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 10 MHz
- **Pulse Generation** Yes
- **Timebase Stability** 50 ppm

#### General

- **Form Factor** PCI Express x1
- **Triggering** 2 x Analog/2 x digital (12 bits)
- **I/O Connector** 68-pin SCSI, female
- **Dimensions (L x W)** 167 x 100 mm (6.6" x 3.9")
- **Power Consumption** Typical: 3.3 V @ 488 mA  
12 V @ 112 mA  
Max.: 3.3 V @ 2.25 A  
12 V @ 390 mA
- **Operating Temperature** 0 ~ 60 °C (32 ~ 140 °F) (refer to IEC 60068-2-1, 2)
- **Storage Temperature** -40 ~ 70 °C (-40 ~ 158 °F)
- **Storage Humidity** 5 ~ 95% RH non-condensing (refer to IEC 60068-2-3)

### Ordering Information

- **PCI-E-1810-AE** 800 kS/s, 12-bit multifunction card

#### Accessories

- **PCL-10168H-1E** 68-pin SCSI shielded cable with noise rejection, 1 m
- **PCL-10168H-2E** 68-pin SCSI shielded cable with noise rejection, 2 m
- **PCL-10168-1E** 68-pin SCSI shielded cable, 1 m
- **PCL-10168-2E** 68-pin SCSI shielded cable, 2 m
- **ADAM-3968-AE** 68-pin DIN rail SCSI wiring board
- **PCLD-8810E-AE** 68-pin SCSI DIN-rail Wiring Board for PCI-E-1800 series
- **PCLD-8811-AE** Low-Pass Active Filter Board

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