

PCIE-1813

38.4 kS/s, 26-Bit, 4-Ch, Simultaneous Sampling, Universal Bridge Input, Multifunction PCI Express Card



FCC CE RoHS COMPLIANT PRODUCT

Features

- 4 simultaneous sampling analog inputs, up to 38.4 kS/s, 26-bit resolution
- Full, half, and quarter-bridge sensor input with built-in anti-aliasing filter
- 2 analog outputs, up to 3 MS/s, 16-bit resolution
- Four 32-bit programmable encoder counters/ timers/ encoder counters
- 32 programmable DI/Os with interrupt functions
- Board ID switch
- Full automatic calibration

Introduction

PCIE-1813 is a 26-bit high-resolution multifunction data acquisition PCI Express card specifically designed for bridge sensor inputs, such as strain gauges, load cells, pressure sensors, and torque sensors. PCIE-1813 also features 2-ch, 16-bit analog outputs with waveform generation capability and supports simultaneous waveform generation and analog input functions.

Specifications

Analog Input Overview

- Channels 4
- Resolution 26 bits
- Sample Rate 38.4 kS/s max. simultaneous

Voltage Input

- Input Ranges $\pm 10\text{ V}$, $\pm 5\text{ V}$, $\pm 2.5\text{ V}$, $\pm 1.25\text{ V}$, $\pm 625\text{ mV}$, $\pm 312.5\text{ mV}$
- Accuracy $\pm 0.01\%$ of FSR

Bridge Input

- Input Ranges $\pm 31.25\text{ mV/V}$, $\pm 62.5\text{ mV/V}$, $\pm 125\text{ mV/V}$, $\pm 250\text{ mV/V}$, $\pm 500\text{ mV/V}$, and $\pm 1\text{ V/V}$
- Bridge Mode Full, half, quarter
- Bridge Resistance $120\ \Omega$, $350\ \Omega$, $1\text{ k}\Omega$
- Shunt Calibration $33.333\text{ k}\Omega$, $50\text{ k}\Omega$, $100\text{ k}\Omega$
- Excitation Voltage $0\text{ -- }10\text{ V}$
- Remote Sensing Yes

Analog Output

- Channels 2
- Resolution 16 bits
- Output Rate 3 MSPS max.
- Output Range Software programmable

Internal Reference	Unipolar	$0\text{ -- }5\text{ V}$, $0\text{ -- }10\text{ V}$
	Bipolar	$-5\text{ V -- }5\text{ V}$, $-10\text{ V -- }10\text{ V}$
External Reference		$0\text{ -- }+x\text{ V @ -}x\text{ V}$ ($-10\text{ } \leq x \leq 10$)

- Slew Rate $20\text{ V}/\mu\text{s}$
- Driving Capability 5 mA
- Operation Mode Static update, waveform generation
- Accuracy $\pm 0.01\%$ of FSR

Analog Trigger

- Channels 2
- Resolution 16 bits
- Input Range $-10\text{ V -- }+10\text{ V}$
- Hysteresis Yes. Hysteresis range is configurable
- Trigger Edge Rising edge or falling edge, selected by software

Digital Trigger

- Channels 2

- Input Voltage Logic 0: 1.5 V max.
Logic 1: 3.5 V min.
- Trigger Edge Rising edge or falling edge, selected by software

Digital I/O

- Channels 32 (shared)
- Input Voltage Logic 0: 1.5 V max.
Logic 1: 3.5 V min.
Low 0.5 V max. @ $+20\text{ mA}$ (sink)
High 4.5 V min. @ -20 mA (source)
- Output Voltage

Counter/ Timer/ Encoder Counter

- Channels 4
- Resolution 32 bits
- Input/Output Voltage Same as that for digital I/O
- Max. Input Frequency 10 MHz
- Counter/Timer Functions Frequency measurement, pulse width measurement, pulse output, PWM output
Quadrature (X1, X2, X4), dual pulse (CW/CCW), signed pulse (OUT/DIR)
- Encoder Functions

General

- Form Factor PCI Express x1
- I/O Connector 100-pin SCSI female ribbon-type connector
- Dimensions (L x W) $167\text{ x }100\text{ mm}$ ($6.6\text{ x }3.9\text{ inches}$)
- Operating Temperature $0\text{ -- }60\text{ }^\circ\text{C}$ ($32\text{ -- }140\text{ }^\circ\text{F}$) (refer to IEC 68-2-1, 2)
- Storage Temperature $-40\text{ -- }70\text{ }^\circ\text{C}$ ($-40\text{ -- }158\text{ }^\circ\text{F}$)
- Storage Humidity $5\text{ -- }95\%$ RH non-condensing (refer to IEC 68-2-3)
- Board ID TM switch

Ordering Information

- PCIE-1813-AE 38.4 kS/s, 26-bit, 4-ch, simultaneous sampling, universal bridge input, multifunction PCI Express card

Accessories

- PCL-101100R-1E 100-pin SCSI shielded cable, 1 m
- PCL-101100R-2E 100-pin SCSI shielded cable, 2 m
- ADAM-39100-BE 100-pin DIN rail SCSI wiring board
- PCLD-8810-AE Low-Pass Active Filter Board
- PCLD-8813-AE 6Advanced Signal Conditioning Board for PCIE-1812/PCIE-1813
- PCLD-8811-AE Low-Pass Active Filter Board