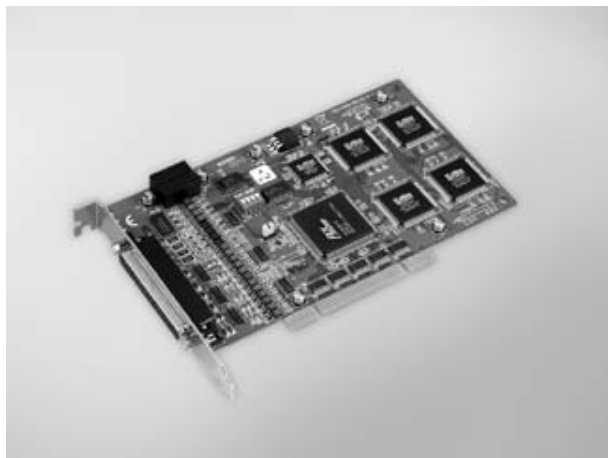


# PCI-1784U

## 4-axis Quadrature Encoder and 4-ch Counter Universal PCI Card with 8-ch Isolated Digital I/O



### Features

- 4 x 32-bit up/down counters
- Single-ended or differential inputs
- Pulse/direction and up/down counter
- x1, x2, x4 counts for each encoder cycle
- Optically isolated up to 2,500 V<sub>DC</sub>
- 4-stage digital filter with selectable sampling rate
- Onboard 8-bit timer with wide range time-base selector
- Multiple interrupt sources for precision application
- 4 x isolated digital input and 4 x isolated digital output
- BoardID™ switch

### Introduction

PCI-1784U is a 4-axis quadrature encoder and counter add-on card for PCI bus. The card includes four 32-bit quadruple A/B phase encoder counters, 8-bit timer with multi range time-base selector and 4 isolated digital inputs as well as 4 isolated digital outputs. Its flexible interrupt sources are suitable for motor control and position monitoring.

### Specifications

#### Encoder Input

- **Number of Axes** 4 (independent)
- **Resolution** 32-bit
- **Max. Quadrature Input** 1.0 MHz with digital filter  
2.0 MHz without digital filter
- **Digital Filter** 4 stage
- **Drive Type** Single-ended or differential
- **Counter Modes** Quadrature, up/down, pulse/direction
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Max. Input Pulse Freq.** x 1, x 2, x 4
- **Sample Clock Freq.** 8, 4, 2, or 1 MHz

#### Input Range

- **Single Ended Configuration** Logic 0 : 0.8 V max.  
Logic 1 : 2.8 V min. (12 V max.)
- **Differential Configuration** Logic 0 : -0.2 V max.  
Logic 1 : 0.2 V min. (±12 V max.)

#### Isolated Digital Input

- **Channels** 4
- **Input Voltage** Logic 0 : 3 V max.  
Logic 1 : 10 V min. (30 V max.)
- **Interrupt Capable Ch.** DIO ~ DI3
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Opto-Isolator Response** 25µs
- **Overvoltage Protection** 70 V<sub>DC</sub>

#### Isolated Digital Output

- **Channels** 4
- **Compatibility** 5V
- **Isolation Protection** 2,500 V<sub>DC</sub>
- **Output Voltage** Logic 0: 0.8 V min.  
Logic 1: 2.0 max.

- **Sink/Source Current** 50 mA max./channel
- **Opto-Isolator Response** 2 µs

#### Counter/Timer

- **Channels** 4
- **Resolution** 32 bits
- **Compatibility** 5 V/TTL
- **Max. Input Frequency** 8 MHz
- **Counter Modes** Quadrature, 2-pulse, pulse/direction
- **Interrupt Capable Ch.** Counter0 ~ Counter3
- **Digital Noise Filter** 4 stage

#### General

- **Bus Type** Universal PCI V2.2
- **Connectors** 37-pin D-sub female connector
- **Dimensions (L x H)** 175 x 100 mm (6.9" x 3.9")
- **Power Consumption** Typical: +5 V @ 200 mA  
Max.: +5 V @ 450 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Storage Humidity** 5 ~ 95% RH, non-condensing (refer to IEC 68-2-3)
- **Certifications** CE

### Ordering Information

- **PCI-1784U** 4-axis Quadrature Encoder and Counter Card
- **PCL-10137H-3** High-speed DB37 Cable, 3 m
- **ADAM-3937** DB37 DIN-rail Wiring Board