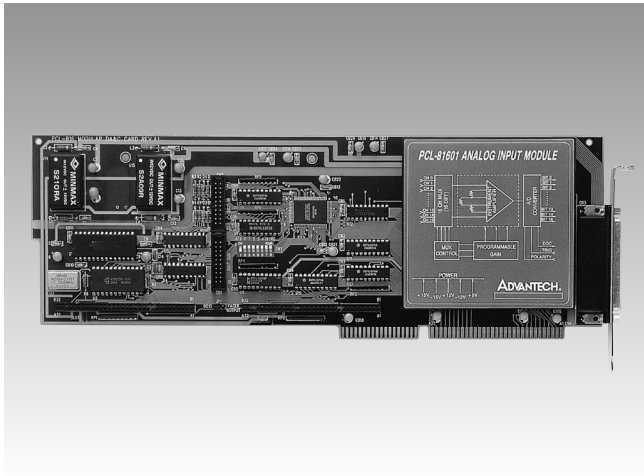


# PCL-816/816-DA

## Modular High-resolution Multifunction Card



### Features

- 16-bit resolution A/D converter
- High-performance 100 KHz sampling rate
- Accepts 16 differential analog inputs with separately programmable gains (x 1, 2, 4 or 8)
- Programmable DMA channel
- Programmable IRQ level
- Metal-shielded A/D module for noise reduction
- Auto channel scanning circuit
- Versatile language drivers for C/C++, Pascal and BASIC
- Optional 16-bit D/A output module

### Introduction

The PCL-816 modular DAS card allows you to choose your own customized data acquisition configuration. Its 100 KHz A/D module offers 16-bit resolution with 16 channels of differential analog input measurement. The A/D module has its own protective cover, ensuring excellent signal shielding and noise immunity. A DB-37 cable connector provides fully-shielded signal connections to the A/D module. In addition to the standard A/D module, the carrier board has two 64-pin piggyback connectors for additional function expansion modules. Accepting most sub-modules, this modular system makes customizing and upgrading easy.

### Specifications

#### Analog Input

- **Channels** 16, differential
- **Resolution** 16 bits
- **Conversion Time** 8.5  $\mu$ sec.
- **Max. Sampling Rate** 100 KHz
- **Software Programmable Input Range (V)**  
Bipolar:  $\pm 10$ ,  $\pm 5$ ,  $\pm 2.5$ ,  $\pm 1.25$   
Unipolar: 0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25
- **Trigger Mode** software, pacer or external trigger
- **Data Transfer** software, interrupt (IRQ 2-7, S/W select) or DMA (channel 1 or 3, S/W select)
- **Accuracy** 0.003%  $\pm 1$  LSB
- **Input Impedance**  $> 10$  M $\Omega$
- **Input Overvoltage**  $\pm 15$  V
- **Connector** Female DB-37

#### Digital Input

- **Channels** 16
- **Logic Level** TTL-compatible  
Logic level 0: 0.8 V max.  
Logic level 1: 2.0 V min.
- **Connector** 20-pin flat cable

#### Digital Output

- **Channels** 16
- **Logic Level** TTL-compatible  
Logic level 0: 0.4 V max. @ 16 mA (sink)  
Logic level 1: 2.4 V min. @ 800 mA (source)
- **Connector** 20-pin flat cable

#### General

- **Programmable Pacer Clock**  
Device: Intel 8254 or equivalent  
Time base: 10 MHz  
Max. rate: 2.5 MHz  
Min. rate: 0.00023 Hz
- **I/O Ports** each card occupies 16 consecutive I/O addresses
- **Expansion** the PCL-816 accepts one PCL-816-DA D/A module, providing 2 channels of 16-bit analog output
- **Power Consumption**  
+5 V @ 430 mA typical  
+5 V @ 500 mA max.  
+12 V @ 260 mA typical  
+12 V @ 280 mA max.
- **Dimensions (L x H)** 337 x 112 mm (13.3" x 4.4")

#### PCL-816-DA 2-channel 16-bit D/A module

- **Channels** 2
- **Resolution** 16 bits, double-buffered
- **Output Ranges** bipolar  $\pm 10$  V
- **Output Current**  $\pm 5$  mA max.
- **Settling Time** 5  $\mu$ sec.
- **Data Transfer** software, DMA
- **Accuracy**  $\pm 0.003\%$  full scale range
- **Linearity**  $\pm 2$  LSB typical,  $\pm 4$  LSB max.
- **Reset (power-on) Status** All D/A channels will be at 0 V after reset or power-on
- **Temperature Drift** 15 PPM/ $^{\circ}$ C of full span (0 ~ 50 $^{\circ}$  C)

### Ordering Information

- **PCL-816** Modular High-Resolution Multifunction card. Includes on-board 16-bit A/D module, user's manual and driver CD-ROM. (cable not included)
- **PCL-816-DA** 2-channel 16-bit D/A Module

## Accessories

- **PCLD-10120-1** 20-pin flat cable, 1 m
- **PCLD-10120-2** 20-pin flat cable, 2 m
- **PCL-10137-1** DB-37 cable assembly, 1 m
- **PCL-10137-2** DB-37 cable assembly, 2 m
- **PCL-10137-3** DB-37 cable assembly, 3 m
- **PCLD-782** 16-channl opto-isolated digital input board
- **PCLD-782B** 24-channl opto-isolated digital input board
- **PCLD-785** 16-channl relay output board
- **PCLD-785B** 24-channl relay output board
- **PCLD-788** Relay Scanner/Multiplexer board
- **PCLD-789D** Amplifier & Multiplexer board with DB-37 connector
- **PCLD-8115** Wiring terminal board
- **PCLD-880** Wiring terminal board

## Applications

- Transducer and sensor measurements
- Waveform acquisition and analysis
- Process control and monitoring
- Vibration and transient analysis

## Software and Drivers

- **Windows DLL Driver** The PCL-816's Windows 95/98/ME/NT/XP/2000 dynamic link library (DLL) driver lets you write Microsoft Windows programs using tools such as Visual BASIC, Microsoft Visual C++, Borland C++ and Delphi
- **ActiveX Control** Advantech ActiveDAQ provides ActiveX Control for Visual Basic programming.
- **Application Packages** The PCL-816 is supported by a wide range of data acquisition software packages, including LabVIEW and Advantech Data Acquisition Software

