**PCL-818L**

40 kHz, Low-Cost, Multifunction ISA Cards

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### Introduction

The PCL-818L series was designed for entry-level models to the PCL-818 series. The cards have been designed with the cost-sensitive customer in mind, but still offer the same functions as the rest of the series, except that they have a 40 kHz sampling rate and only accept bipolar inputs. They are fully software and connecter compatible with the PCL-818HD and PCL-818HG. This lets you upgrade your applications to these higher performance cards without hardware or software changes.

The PCL-818LS bundle consists of the PCL-818L card, the PCLD-8115 wiring terminal board and a DB37 cable assembly. The PCLD-8115 accommodates on-board passive signal conditioning components (resistors and capacitors), allowing you to easily implement a low-pass filter, a voltage attenuator or a 4 – 20 mA voltage converter.

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### Specifications

**Analog Input**
- Channels: 16 single-ended, or 8 differential
- Resolution: 12 bits
- Max. Sampling Rate: 40 kS/s for all input ranges
- Overvoltage Protection: ±30 V<sub>d</sub>, max.
- Input Impedance: 10 kΩ
- Sampling Modes: Software, paced or external
- Input Range: (V, software programmable)

<table>
<thead>
<tr>
<th>Bipolar Accuracy (% of FSR ±1LSB)</th>
<th>±0.1</th>
<th>±0.5</th>
<th>±2.5</th>
<th>±1.25</th>
<th>±0.625</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.01</td>
<td>±0.01</td>
<td>±0.02</td>
<td>±0.02</td>
<td>±0.04</td>
<td></td>
</tr>
</tbody>
</table>

**Analog Output**
- Channels: 1
- Resolution: 12 bits
- Output Rate: Static update
- Output Range: (V, software programmable)

<table>
<thead>
<tr>
<th>Internal Reference</th>
<th>Unipolar</th>
<th>0 – 5, 0 – 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Reference</td>
<td>0–10, 0–10</td>
<td></td>
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**Digital Input**
- Channels: 16
- Compatibility: 5 V/TTL
- Input Voltage: Logic 0: 0.8 V max.  
  Logic 1: 2.0 V min.

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### Features

- 16 single-ended or 8 differential analog inputs  
- 12-bit A/D converter  
- Programmable gain for each input channel  
- Automatic channel/gain scanning with DMA  
- 16 digital inputs and 16 digital outputs  
- One 12-bit analog output channel  
- Programmable paced/counter

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### 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 mA  
  Source: -0.4 mA

### Timer/Counter

- Channels: 32-bit with 10 MHz or 1 MHz time base  
- Max. and Min. Rates: 2.5 MHz to 0.00023 Hz  
- Counter: One 16-bit counter with 100 kHz time base

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### General

- Power Consumption:  
  - +5 V @ 210 mA typical, 500 mA max.  
  - +12 V @ 20 mA typical, 100 mA max.  
  - -12 V @ 20 mA typical, 40 mA max.
- I/O Connector: DB37-F  
- Dimensions (L x H): 155 x 100 mm (6.1" x 3.9")  
- Operating Temperature: 0 – 50° C (32 – 122° F)  
- Storage Temperature: -20 – 65° C (-4 – 149° F)  
- Operating Humidity: 5 – 95% RH, non-condensing (refer to IEC 68-2-3)
Ordering Information

- **PCL-818L** Low-cost high-performance half-size multi-function card, user’s manual and driver CD-ROM (cable not included)
- **PCL-818LS** PCL-818L with PCLD-8115 and DB-37 cable assembly (PCL-10137-1)
- **PCL-10137-1** DB37 cable assembly, 1m
- **PCL-10137-2** DB37 cable assembly, 2m
- **PCL-10137-3** DB37 cable assembly, 3m
- **PCLD-8115** Industrial Wiring Terminal with CJC circuit and DB37 connector
- **PCLD-880** Industrial Wiring Terminal with DB37 connector

Feature Details

**Automatic Channel/Gain Scanning**

All PCL-818 cards feature an automatic channel/gain scanning circuit. This circuit, instead of your software, controls multiplexer switching during sampling. On-board SRAM stores different gain values for each channel. This combination lets you perform multi-channel high-speed sampling (up to 100 kHz) with different gains for each channel and DMA data transfer.

**Unique Technology**

PCL-818 cards share a custom-designed 160-pin ASIC chip that has a gate count of over 7,000 and utilizes 1.0 mm CMOS technology. This custom integration gives higher performance and reliability with lower power consumption on a smaller board.

**Wide Selection with Migration Path**

The PCL-818 series lets you choose the card that exactly matches your application and price range. The PCL-818L is designed for lower budgets, with the best price/performance ratio in the market. If you need more power, you can easily upgrade to any other card in the series.

The PCL-818 cards are connector compatible so all your programs will work with your new card, protecting your investment.