**Common 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 pacer/counter
- Free DOS driver/Windows DLL driver included
- Software support from GENIE, ActiveDAQ, LabVIEW, and Windows 3.1/95/NT High Speed DLL drivers.

**Common Specifications**

**Analog Input**

- **Channels**: 16 single-ended or 8 differential
- **Resolution**: 12 bits
- **Input range selection**: Software controlled
- **Auto channel/gain scanning**
- **Triggering**: Software, pacer or external
- **Data transfer**: Program control, interrupt (IRQ 2 ~ 7) or DMA (Ch. 1 or 3)
- **Input impedance**: 10 MΩ
- **Input overvoltage**: ±30 VDC max.

**Analog Output (D/A Converter)**

- **Channels**: One 12-bit (double-buffered)
- **Output range**: 0 ~ +5 V or 0 ~ +10 V with internal reference
  0 ~ +10 V or 0 ~ -10 V with external reference

**Digital Input/Output**

- **Channels**: 16 inputs, 16 outputs (all TTL compatible)
- **Input voltage**: Low (0 ~ +0.8 V), High (min. +2.0 V)
- **Input load**: Low: +0.5 V @ 0.4 mA max., High: +2.7 V @ 0.05 mA max.
- **Output voltage**: Low: 0 ~ +0.4 V, High: min. +2.4 V
- **Driving capacity**: Low: sink 8 mA @ 0.5 V max., High: source -0.4 mA @ 2.4 V min.

**A/D Pacer and Counter (8254)**

- **A/D pacer**: 32-bit with 10 MHz or 1 MHz time base
- **Max. and min. rates**: 2.5 MHz to 0.000023 Hz
- **Counter**: One 16-bit counter with 100 kHz time base
PCL-818L 40-kHz DAS Card

The PCL-818L is the entry-level model in the PCL-818 series. We designed it with the cost-sensitive customer in mind. It offers the same functions as the rest of the series, except that it has a 40 kHz sampling rate and only accepts bipolar inputs. It is fully software and connector compatible with the PCL-818HD and PCL-818HG. This lets you migrate your applications to these higher performance cards without hardware or software changes.

The PCL-818LS Bundle

The PCL-818LS bundle consists of the PCL-818L card, the PCLD-8115 wiring terminal board and a DB-37 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.

Specifications

- Conversion time: 25 µsec.
- Input range (V): Bipolar: ±10, ±5, ±2.5, ±1.25, ±0.625
- Maximum data throughput: 40 kHz for all input ranges
- Accuracy:
  - Gain = 0.5, 1 0.01% of FSR ±1 LSB
  - Gain = 2, 4 0.02% of FSR ±1 LSB
  - Gain = 8 0.04% of FSR ±1 LSB
- Dimensions: 155 x 100 mm (6.1" x 3.9")
- A/D, D/A connector: DB-37
- I/O ports: 16 consecutive bytes
- Power consumption: 5 V @ 180 mA max., +12 V @ 100 mA max., -12 V @ 14 mA

PCL-818H General-purpose DA&C Card with 20-pin Connectors

The PCL-818H is a 100 kHz DAS card with standard PCL-818 series features. It attaches directly to signal-conditioning boards with 20-pin flat-cable connectors. The PCL-818H is a half-size card that uses the Advantech ASIC chip.

Specifications

Analog Input

- Conversion time: 8 µsec.
- Input range (V):
  - Bipolar: PCL-818H: ±10, ±5, ±2.5, ±1.25, ±0.625
  - Unipolar: PCL-818H: 0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25
- Maximum data throughput: 100 kHz
- Accuracy:
  - Gain = 0.5, 1 0.01% of FSR ±1 LSB
  - Gain = 2, 4 0.02% of FSR ±1 LSB
  - Gain = 8 0.04% of FSR ±1 LSB
- A/D, D/A connector: 20-pin flat cable
- I/O ports: 16 consecutive bytes
- Power Consumption:
  - +5 V @ 500 mA max.,
  - +12 V @ 200 mA max.,
  - -12 V @ 14 mA
- Dimensions: 185 x 100 mm (7.3" x 3.9")
**PCL-818HD 100 kHz A/ D at All Input Ranges**

The PCL-818HD has a guaranteed 100 kHz sampling speed and transfer speed at all gains (x 1, 2, 4 or 8, programmable) and input ranges. It features an on-board 1 Kword FIFO (First In First Out) buffer for faster data transfer and more predictable performance under Windows.

The PCL-818HD can perform 100 kHz A/D conversion with data streaming to disk using Windows application programs like DASYLab.

**Specifications**

**Analog Input**
- **Conversion time**: 8 μsec.
- **Input range (V)**:
  - Bipolar: ±10, ±5, ±2.5, ±1.25, ±0.625
  - Unipolar: 0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25
- **Maximum data throughput**: 100 kHz for all input ranges
- **Accuracy**:
  - Gain = 0.5, 1: 0.01% of FSR ±1 LSB
  - Gain = 2, 4: 0.02% of FSR ±1 LSB
  - Gain = 8: 0.04% of FSR ±1 LSB

**General**
- **On-board memory**: 1 Kword FIFO for A/D. Can generate an interrupt when full or half full
- **Dimensions**: 185 x 100 mm (7.3" x 3.9")
- **A/D, D/A connector**: DB-37
- **I/O ports**: 32 bytes with FIFO active or 16 bytes with FIFO disabled
- **Power consumption**: 5 V @500 mA max., +12 V @200 mA max., -12 V @14 mA

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**PCL-818HG Direct Thermocouple Measurement**

The PCL-818HG offers the same functions as the PCL-818HD, but it features a special high-gain programmable instrument amplifier for reading very low level input signals (x 0.5, 1, 5, 10, 50, 100, 500 or 1000).

The PCL-818HG package includes a special wiring board (PCLD-8115) with a DB-37 connector and CJC. This combination lets you measure low-level thermocouple signals without an external signal-conditioning board.

**Specifications**

**Analog Input**
- **Conversion time**: 8 μsec.
- **Input range (V)**:
  - Bipolar: ±10, ±5, ±1, ±0.5, ±0.1, ±0.05, ±0.01, ±0.005
  - Unipolar: 0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01
- **Maximum data throughput**: (depends on input amplifier settling time and slew rate)
- **Gain Speed Channels**
  - 0.5, 1: 100 kHz Single (input signal ≤ 3 V p-p)
  - 0.5, 1, 5, 10: 35 kHz Multiple
  - 50, 100: 7 kHz Multiple
  - 500, 1000: 1 kHz Multiple
- **Accuracy**:
  - Gain = 0.5, 1: 0.01% of FSR ±1 LSB
  - Gain = 5, 10: 0.02% of FSR ±1 LSB
  - Gain = 50, 100: 0.04% of FSR ±1 LSB
  - Gain = 500, 1000: 0.08% of FSR ±1 LSB

**General**

See PCL-818HD
**Block Diagram (PCL-818HG)**

![Block Diagram](image)

**Ordering Information**
- **PCL-818L**: Low-cost high-performance half-size DAS card, user’s manual and utility diskette with DOS/Windows drivers.
- **PCL-818LS**: PCL-818L with PCLD-8115 and cable assembly.
- **PCL-818HG**: High-performance high-gain half-size DAS card, user’s manual and utility diskette with DOS/Windows drivers.
- **PCL-818HD**: High-performance half-size DAS card with DB-37 connector. Includes user’s manual and utility diskette with DOS/Windows drivers.
- **PCLS-OCX**: ActiveX Control for data acquisition and control.

**PCL-818 Series Quick-reference Table**

<table>
<thead>
<tr>
<th>Model</th>
<th>A/D speed</th>
<th>Unipolar input (V)</th>
<th>Bipolar input (V)</th>
<th>On-board memory</th>
<th>D/A chan.</th>
<th>Connector</th>
<th>Size</th>
<th>On-board DC/DC</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-818L</td>
<td>40 kHz</td>
<td>-</td>
<td>±10, ±5, ±2.5, ±1.25, ±0.625</td>
<td>-</td>
<td>1</td>
<td>DB-37</td>
<td>155 x 100 mm</td>
<td>-</td>
<td>&lt; 1.4 W</td>
</tr>
<tr>
<td>PCL-818HD</td>
<td>100 kHz</td>
<td>0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25</td>
<td>±10, ±5, ±2.5, ±1.25, ±0.625</td>
<td>1 K word FIFO</td>
<td>1</td>
<td>DB-37</td>
<td>185 x 100 mm</td>
<td>Yes</td>
<td>&lt; 3.0 W</td>
</tr>
<tr>
<td>PCL-818HG</td>
<td>100 kHz</td>
<td>0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01</td>
<td>±10, ±5, ±1, ±0.5, ±0.1, ±0.01, ±0.005</td>
<td>1 K word FIFO</td>
<td>1</td>
<td>DB-37</td>
<td>185 x 100 mm</td>
<td>Yes</td>
<td>&lt; 2.8 W</td>
</tr>
<tr>
<td>PCL-818H</td>
<td>100 kHz</td>
<td>0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25</td>
<td>±10, ±5, ±2.5, ±1.25, ±0.625</td>
<td>-</td>
<td>1</td>
<td>20-pin flat cable</td>
<td>185 x 100 mm</td>
<td>Yes</td>
<td>&lt; 2.8 W</td>
</tr>
</tbody>
</table>

**Note:** All specifications are subject to change without notice.