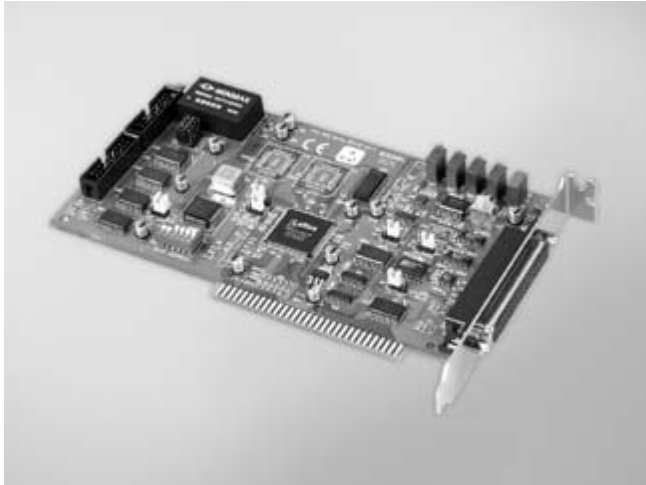# PCL-818HD/HG
PCL-818L

100 kS/s, 12-bit, 16-ch ISA Multifunction Card

40 kS/s, 12-bit, 16-ch ISA Multifunction Card

PCL-818L/HD

Features

- 16-ch single-ended or 8-ch differential analog input
- 12-bit A/D converter, with up to 100 kHz sampling rate
- Programmable gain
- Automatic channel/gain scanning
- Onboard FIFO memory (1,024 samples, PCL-818HD/HG only)
- One 12-bit analog output channel
- 16-ch digital input and 16-ch digital output
- Onboard programmable counter

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 offers the same functions as the rest of the series, except that they have a 40 kHz sampling rate and only accepts bipolar inputs. They are fully software and connector 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 onboard 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

Analog Input

- **Channels**   16 single-ended / 8 differential
- **Resolution**   12 bits
- **Max. Sampling Rate**   100 kS/s for all input ranges (PCL-818HD/HG only)
  40 kS/s for all input ranges (PCL-818L only)
- **FIFO Size**   1,024 samples
- **Overvoltage Protection**   30 Vp-p
- **Input Impedance**   10 MΩ
- **Sampling Modes**   Software, pacer or external
- **Input Range**   (V, software programmable)

PCL-818L/818HD

Bipolar	±10	±5	±2.5	±1.25	±0.625
Unipolar*	N/A	0 ~ 10	0 ~ 5	0 ~ 2.5	0 ~ 1.25
Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4

* **Note:** PCL-818L doesn't support unipolar input range.

PCL-818HG

Bipolar	±10	±5	±1	±0.5	±0.1	±0.05	±0.01	±0.005
Unipolar	N/A	0 ~ 10	N/A	0 ~ 1	N/A	0 ~ 0.1	N/A	0 ~ 0.01
Accuracy (% of FSR ±1LSB)	0.1	0.1	0.2	0.2	0.4	0.4	0.8	0.8

Analog Output

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

Internal Reference	Unipolar	0 ~ 5, 0 ~ 10
External Reference		0 ~ 10, 0 ~ -10

Digital Input

- **Channels**   16
- **Compatibility**   5 V/TTL
- **Input Voltage**   Logic 0: 0.8 V max.
  Logic 1: 2.0 V min.

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**   1
- **A/D Pacer**   32-bit with 10 MHz or 1 MHz time base
- **Max. and Min. Rates**   2.5 MHz and 0.00023 Hz
- **Counter**   One 16-bit counter with 100 kHz time base

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**   1 x DB37 female connector
  2 x 20-pin box header
- **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-818HD** — High-performance Half-size Multifunction Card
- **PCL-818HG** — High-performance and High-gain Multi. Card
- **PCL-818L** — Low-cost High-perform. Half-size Multi. Card
- **PCL-818LS** — PCL-818L w/ PCLD-8115 and DB37 Cable
- **PCL-10137-1** — DB37 Cable, 1 m
- **PCL-10137-2** — DB37 Cable, 2 m
- **PCL-10137-3** — DB37 Cable, 3 m
- **PCLD-8115** — Wiring Board w/ CJC Circuit & One DB37 Cable
- **PCLD-880** — Wiring Board w/ Two 20-pin Flat Cables & Adapter

Pin Assignments

CN1

D/O 0	1	2	D/O 1
D/O 2	3	4	D/O 3
D/O 4	5	6	D/O 5
D/O 6	7	8	D/O 7
D/O 8	9	10	D/O 9
D/O 10	11	12	D/O 11
D/O 12	13	14	D/O 13
D/O 14	15	16	D/O 15
D.GND	17	18	D.GND
+5 V	19	20	+12 V

CN2

D/I 0	1	2	D/I 1
D/I 2	3	4	D/I 3
D/I 4	5	6	D/I 5
D/I 6	7	8	D/I 7
D/I 8	9	10	D/I 9
D/I 10	11	12	D/I 11
D/I 12	13	14	D/I 13
D/I 14	15	16	D/I 15
D.GND	17	18	D.GND
+5 V	19	20	+12 V

CN3 (Single ended)

A/D S0	1	20	A/D S8
A/D S1	2	21	A/D S9
A/D S2	3	22	A/D S10
A/D S3	4	23	A/D S11
A/D S4	5	24	A/D S12
A/D S5	6	25	A/D S13
A/D S6	7	26	A/D S14
A/D S7	8	27	A/D S15
A.GND	9	28	A.GND
A.GND	10	29	A.GND
VREF	11	30	DA0.OUT
S0*	12	31	DA0.VREF
+12 V	13	32	S1*
S2*	14	33	S3*
D.GND	15	34	D.GND
NC	16	35	EXT.TRIG
Counter	17	36	Counter 0
Counter	18	37	PACER
+5 V	19		

CN3 (Differential)

A/D H0	1	20	A/D L0
A/D H1	2	21	A/D L1
A/D H2	3	22	A/D L2
A/D H3	4	23	A/D L3
A/D H4	5	24	A/D L4
A/D H5	6	25	A/D L5
A/D H6	7	26	A/D L6
A/D H7	8	27	A/D L7
A.GND	9	28	A.GND
A.GND	10	29	A.GND
VREF	11	30	DA0.OUT
S0*	12	31	DA0.VREF
+12 V	13	32	S1*
S2*	14	33	S3*
D.GND	15	34	D.GND
NC	16	35	EXT.TRIG
Counter	17	36	Counter 0
Counter	18	37	PACER
+5 V	19		