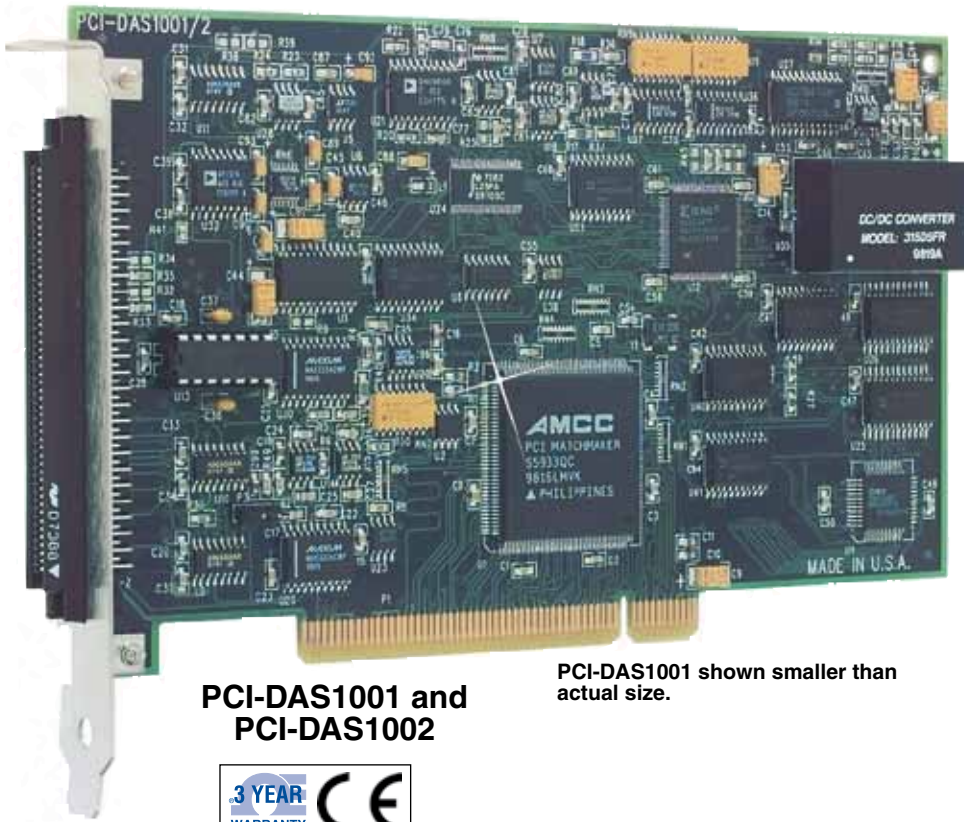# Medium Speed, PCI Bus, 16-Channel Analog Input Board with D/A and Digital I/O

PCI-DAS1001 and PCI-DAS1002

PCI-DAS1001 shown smaller than actual size.

PCI-DAS1001 Analog Input Ranges			
Bipolar:		**Unipolar:**	
Range:	**Resolution:**	**Range:**	**Resolution:**
±10 V	4.88 mV	0 to 10 V	2.44 mV
±1.0 V	0.488 mV	0 to 1.0 V	0.244 mV
±0.1 V	48.8 µV	0 to 0.1 V	24.4 µV
±0.01 V	4.88 µV	0 to 0.01 V	2.44 µV

PCI-DAS1002 Analog Input Ranges			
Bipolar:		**Unipolar:**	
Range:	**Resolution:**	**Range:**	**Resolution:**
±10 V	4.88 mV	0 to 10 V	2.44 mV
±5 V	2.44 mV	0 to 5 V	1.22 mV
±2.5 V	1.22 mV	0 to 2.5 V	0.61 mV
±1.25 V	0.61 mV	0 to 1.25 V	305 µV

3 YEAR WARRANTY CE

- ✔ **16 Single-Ended or 8 Differential Inputs**
- ✔ **12-Bit A/D Resolution**
- ✔ **150 kHz Sample Rate**
- ✔ **Burst Mode and Simultaneous Sample and Hold Emulation**
- ✔ **Dual 12-Bit Analog Outputs**
- ✔ **24-Bit Digital I/O**
- ✔ **Three 16-Bit Counters**

The PCI-DAS1001 and PCI-DAS1002 multifunction analog and digital I/O boards set a new standard for low cost, medium speed data acquisition on the PCI bus for IBM or compatible PC's. It offers 16 single-ended or 8 differential 12-bit analog inputs with sample rates up to 150 kHz, 24 bits of digital I/O and three 16-bit counters. In addition, the PCI-DAS1000 series offers two 12-bit analog outputs.

The only difference between the boards is the analog input ranges provided. The PCI-DAS1002 offers input gains of 1, 2, 4 and 8, while the PCI-DAS1001 offers gains of 1, 10, 100 and 1000.

All I/O signals are brought through a 100-pin high-density connector. The (optional) C100FF-2 series cable splits the 100 pins into two separate 50-pin cables. The first 50-pin cable contains the signals from pins 1-50, while the second carries pins 51-100 and keeps the analog signals in one cable and the digital in another.

Analog Inputs

Software also selects the bipolar/unipolar input configuration as well as selecting among the input ranges. The table below details the input ranges and resolutions for the available input configurations and gains.

Burst Mode

Burst mode minimizes channel-to-channel skew by clocking the A/D at the maximum rate between successive channels.

Software Support

The PCI-DAS1000 series is supplied with InstaCal software for calibration and testing.

Specifications

ANALOG INPUTS

Number of Channels: 8 diff. or 16 SE, software selectable

Resolution: 12 bits

Input Ranges: see range table above

A/D Trigger Sources: external digital (A/D External Trigger)

A/D Triggering Modes: Digital, software enabled, rising edge

Pre-Trigger: unlimited pre- and post-trigger

Data Transfer Mode: from 1024 sample FIFO via REPINSW, interrupt or software polled

Polarity: Unipolar/Bipolar, software selectable

PCI-DAS1001 shown smaller than actual size

A/D Conversion Time: 3 µs
Relative Accuracy: ±1.5 LSB
Differential Linearity Error: ±0.75 LSB
Integral Linearity Error: ±0.5 LSB typ, ±1.5 LSB max
Common Mode Range: ±10 V
Input Leakage Current : 200 nA
Input Impedance: 10 MΩ Min
Maximum Input Voltage: ±15 V
ANALOG OUTPUTS
Resolution: 12 bits
Number of Channels: 2
Output Ranges: ±10 V, ±5 V, 0 to 5 V, 0 to 10 V, each channel
Differential Nonlinearity: ±1 LSB max
Integral Nonlinearity: ±1 LSB max
Settling Time: 4 µs typ (to .01% of 10 V step)
Slew Rate: 7 V/µs
Current Drive: ±5 mA min
DIGITAL I/O
Chip: 82C55A
Configuration: 2 banks of 8, 2 banks of 4, programmable by bank as input or output
Number of Channels: 24 I/O
LOGIC LEVELS
Output High: 3.0 volts @ -2.5 mA min
Output Low: 0.4 volts @ 2.5 mA max

Input High: 2.0 volts min, Vcc +0.5 volts max
Input Low: 0.8 volts max, GND to 0.5 volts min
Power-Up/Reset State: Input mode (high impedance)
COUNTER/TIMERS
Three 16-bit counters using an 82C54 chip
Clock Input Frequency: 10 MHz max
High Pulse Width (clock input): 30 ns min
Low Pulse Width (clock input): 50 ns min

Gate Width High or Low: 50 ns min
Input Low Voltage: 0.8 V max
Input High Voltage: 2.0 V min
Output Low Voltage: 0.4 V max
Output High Voltage: 3.0 V min
ENVIRONMENTAL
Operating Temp Range: 0 to 70°C (32 to 158°F)
Storage Temp Range: -40 to 100°C (-40 to 212°F)
Humidity: 0 to 90% RH, non-condensing
Power Consumption: +5 V operating: 0.8 A typical, 1.0 A max

To Order

Model No.	Description
PCI-DAS1001	16-channel, high gain, 150 kHz, 12-bit A/D and digital I/O board for PCI bus computers
PCI-DAS1002	16-channel, standard gain, 150 kHz, 12-bit A/D, D/A and digital I/O board for PCI bus computers
CIO-MINI50	50-pin, screw terminal board (two are required)
C100FF-2	100-pin ribbon cable, 2' long. Splits 100-pin connector into two 50-pin connectors (one is required)

The PCI-DAS1000 series comes with InstaCal testing software and complete operator's manual.

***Ordering Example: PCI-DAS1001** A/D card, two **CIO-MINI50** terminal panels, **C100FF-2** cable, and **OMEGACARE**SM 1-year extended warranty for PCI-DAS1001 (adds 1 year to standard 3-year warranty).*