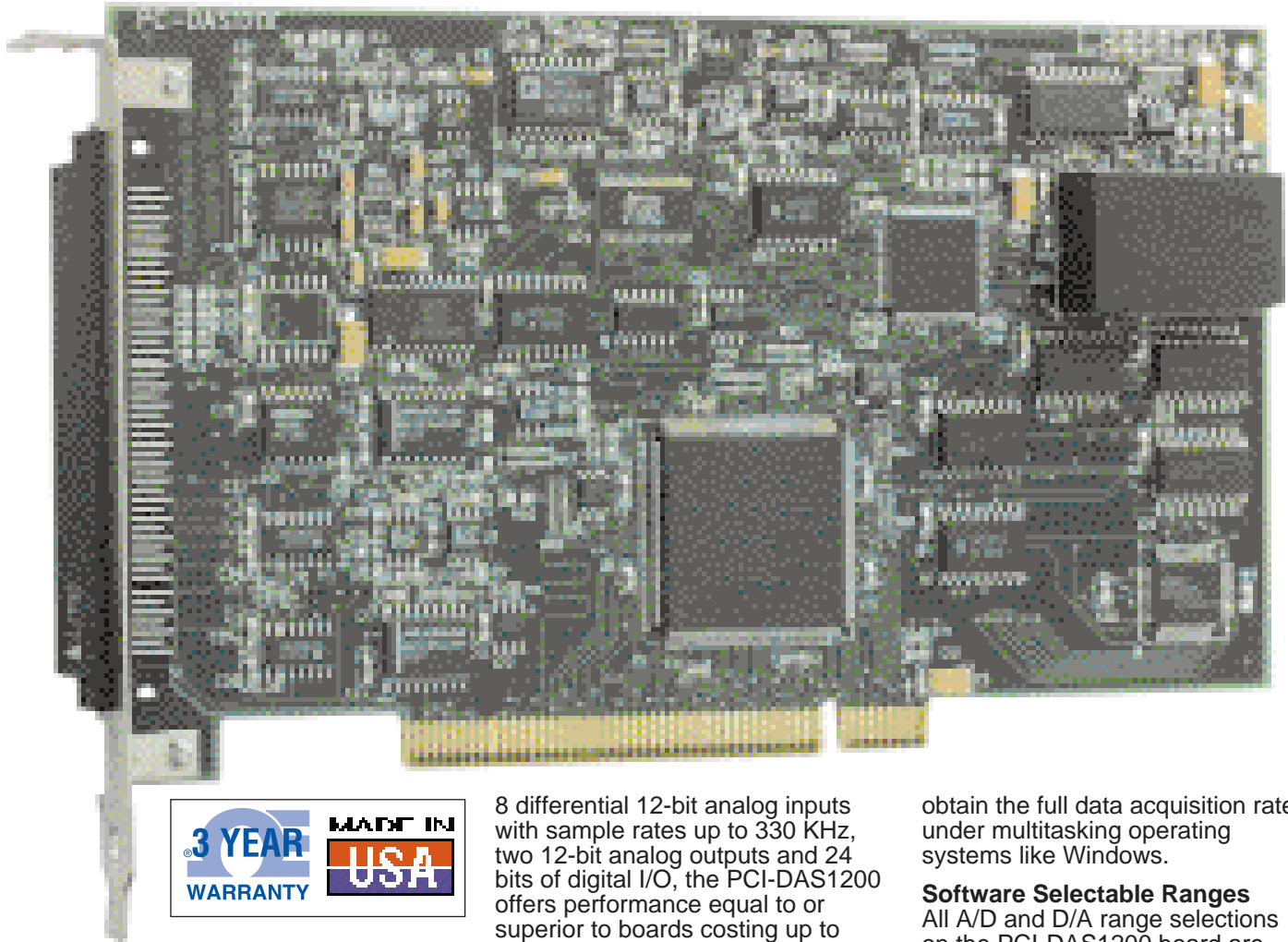# PCI-DAS1200 Low Cost, High Speed Multifunction Board for the PCI-Bus

**NEW™**

## $649

✔ **8 Differential/ 16 Single-Ended Analog Inputs**
✔ **12-bit A/D Resolution**
✔ **330 KHz Sample Rate**
✔ **Dual 12-bit Analog Outputs**
✔ **1024 Sample FIFO**
✔ **24-Bits Digital I/O**
✔ **Fully Plug-n-Play**

The PCI-DAS1200 multifunction analog and digital I/O boards set the new standard for low cost, high speed data acquisition boards on the PCI-bus. Offering 16 single-ended or

8 differential 12-bit analog inputs with sample rates up to 330 KHz, two 12-bit analog outputs and 24 bits of digital I/O, the PCI-DAS1200 offers performance equal to or superior to boards costing up to 50% more.

Installed in any PCI-bus compatible personal computer the PCI-DAS1200 turns your personal computer into a high speed data acquisition and control station suitable for laboratory data collection, instrumentation, production test, or industrial monitoring.

### FIFO Provides Full Data Rate Under Windows

The on-board 1024 sample FIFO buffer collects the results of A/D conversions and stores them until the computer's CPU is able to transfer the data into PC memory. The FIFO buffer allows the PC to store up the A/D transfer requests, then service the requests in batches. The FIFO is necessary to obtain the full data acquisition rates under multitasking operating systems like Windows.

### Software Selectable Ranges

All A/D and D/A range selections on the PCI-DAS1200 board are selected via software. The A/D ranges and resolutions available on the board are shown below.

| Bipolar Range | Resolution | Unipolar Range | Resolution |
|---|---|---|---|
| ±10 V | 4.88 mV | 0 - 10 V | 2.44 mV |
| ±5 V | 2.44 mV | 0 - 5 V | 1.22 mV |
| ±2.5 V | 1.22 mV | 0 - 2.5 V | 0.61 mV |
| ±1.25 V | 0.61 mV | 0 - 1.25 V | 305 µV |

### Minimizing Channel to Channel Skew

All of the channels on the PCI-DAS1200 are multiplexed into a single A/D converter. Since there is only one A/D converter on the board, a channel to channel skew time (delay) occurs when scanning multiple channels. With many A/D boards, the skew time is equal to the sample rate, so a 1 KHz sample
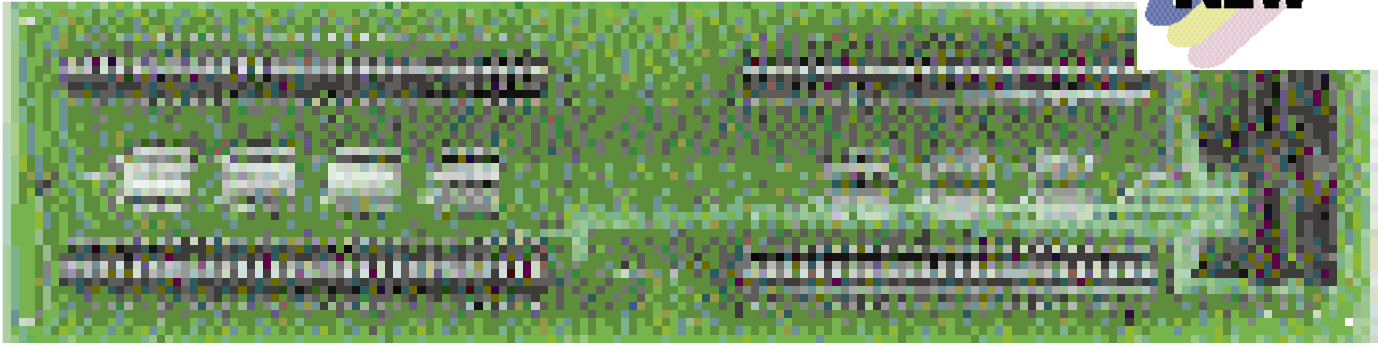
rate would produce a 1 millisecond skew time. The PCI-DAS1200 features an enhanced triggering mode called the burst mode. In the burst mode the A/D converter is run at its maximum rate for the entire multi-channel scan, thus reducing the channel to channel skew time to the maximum A/D rate which is 3 µS.

## Software

The PCI-DAS1200 includes a complete test and calibration program. The program provides a step-by-step procedure for installing and configuring the card. It also creates a configuration file used by the optional Universal Library.

The Universal Library is a set of I/O libraries and drivers for those users creating their own custom programs. The Universal Library is compatible with most DOS and Windows based languages and supports the entire PCI and CIO family of boards. The Library includes an extensive set of programming examples written in Visual Basic, C and Pascal for both Windows and DOS languages.

An optional driver for LabView is also available. The LabView driver works in conjunction with the Universal Library, so both are needed to use the PCI-DAS1200 in LabView.

## Accessories

Field wiring is greatly simplified when you purchase the optional C100-FF2 cable and CIO-TERM100 screw terminal board. This combination brings all 100 PCI-DAS1200 pins out to easy to connect to screw terminals. The screw terminals accept wire sizes 12-22 AWG. The board provides positions to mount pull-up and pull down resistors or other user installed circuitry.

## Specifications

(Typical for 25°C unless otherwise specified)

**Analog Input Section Resolution:** 12 bits

**Input Ranges:** ±10V, ±5 V, ±2.5 V, ±1.25V, 0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V

**A/D Conversion Time:** 3µs

**Throughput:** 330KHz min

**Differential Linearity Error:** ±0.75 LSB

**Integral Linearity error:** ±1.50 LSB max, ±0.5 LSB typ.

**Gain Error:** 0.02% Max

**No Missing Codes Guaranteed:** 12 bits

**Gain Drift (A/D Specs):** ±6 ppm/°C, all ranges

**Zero Drift (A/D Specs):** ±1 ppm/°C, all ranges

**Input Leakage Current:** 200nA

**Input Impedance:** Min 10Meg Ohms

**Absolute Maximum input:** ±15 V

**A/D Triggering Modes:** Edge or level, programmable polarity unlimited pre and post trigger samples

### Analog Output Specifications

**Resolution:** 12 bits

**Number of Channels:** 2

**Voltage Ranges:** ±10 V, ±5 V, 0-5 V, 0-10 V

**Offset Error:** ±100 µV max

**Gain Error:** ±0.02% max (calibrated)

**Differential Nonlinearity:** ±1 LSB max

**Integral Nonlinearity:** ±1 LSB max

**Monotonicity:** 12 bits at 25°C

**D/A Gain Drift:** ±2 ppm/°C max

**D/A Bipolar Offset Drift:** ±5 ppm/°C max

**D/A Unipolar Offset Drift:** ±5 ppm/°C max

**Data transfer throughput rate:** software update rate limited

**Settling Time (10V Step):** 4 µs typ

**Slew Rate:** 7 V/µs

**D/A Trigger Modes:** Software Driven

**Current Drive:** ±5 mA min

**Output Short-Circuit Duration:** 25 mA indefinite

All D/As have double buffered input latches. On Power up and reset all DAC's cleared to 0 volts

### Digital I/O

**Digital I/O:** 24 from 82C55A

**Logic Low Level:** -0.5 to 0.8V max

**Logic High Level:** 2.0 to 5.0V max

**Input Current:** ±10 µA max

**Output Low Sink Current:** 2.5 mA @ 0.45V

**Output High Source Current:** -2.5 mA @ 2.4V

### Environmental

**Operating Temperature Range:** 0 to 70°C

**Storage Temperature Range:** -40 to 100°C

**Humidity:** 0 to 90% non-condensing

**Power Consumption:** 0.8 A typical, 1.0 A max

| To Order *(Specify Model Number)* | | |
|---|---|---|
| **Model No.** | **Price** | **Description** |
| **PCI-DAS1200** | **$649** | Low cost, 16 channel, 16-bit analog I/O board |
| **CIO-TERM100** | 149 | 100 terminal screw terminal adapter board, requires cable |
| **C100-FF2** | 49 | 100 conductor cable |
| **UNIV-DRVR** | 49 | Universal Driver Library |
| **CIO-LABVIEW-DRVR** | 49 | LabVIEW driver, requires Universal Driver Library |

*The PCI-DAS1200 includes a user's manual and configuration and test software.*

**Ordering Example:** *PCI-DAS1200 board, CIO-TERM100 terminal panel, C100-FF2 cable UNIV-DRVR driver library: $649 + 149 + 49 + 49 = **$896.***