PCI-DAS1602-16 & PCI-DAS1602-12 High Speed PCI-Bus Compatible Multifunction Board

3 YEAR WARRANTY

MADE IN USA

- ✔ **16 Single Ended/ 8 Differential Analog Inputs**
- ✔ **Models with 12 and 16-Bit Analog Input Resolution**
- ✔ **330KHz Sample Rate (PCI-DAS1602-12)**
- ✔ **On board sample FIFO**
- ✔ **Dual High Speed Analog Outputs**
- ✔ **24-Bits High Drive I/O**
- ✔ **Fully Plug-n-Play**

PCI-DAS1602-12

The PCI-DAS1602 multifunction analog and digital I/O boards set the new standard for high speed data acquisition boards on the PCI-bus.

Installed in any PCI-bus compatible personal computer, the PCI-DAS1602 turns your personal computer into a high speed data acquisition and control station suitable for laboratory data collection, instrumentation, production test, or industrial monitoring.

Two versions of the PCI-DAS1602 are available; the PCI-DAS1602-12 and the PCI-DAS1602-16. The PCI-DAS1602-12 features 12-bit analog input and output resolution and 330 KHz sample rate. The PCI-DAS1602-16 features 16-bit analog input and output resolution and 200 KHz sample rate.
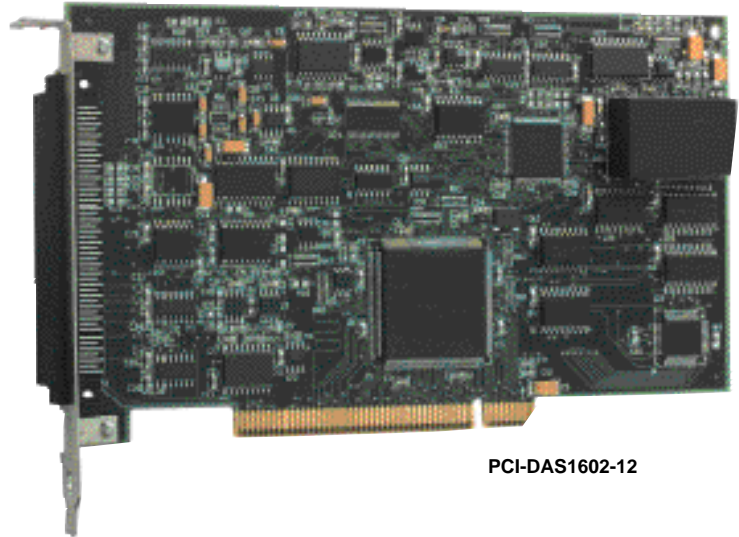
FIFO Provides Full Data Rate Under Windows
The on-board FIFO buffer collects the results of A/D conversions and stores them until the computer's CPU is able to transfer the data into PC memory. The FIFO buffer allows the PC to store up the A/D transfer requests, then service the requests in batches. The FIFO is necessary to obtain the full data acquisition rates under multitasking operating systems like Windows. The PCI-DAS1602-12 has a 1024 sample FIFO and the PCI-DAS1602-16 has a 512 sample FIFO.

Minimizing Channel to Channel Skew
All of the channels on the PCI-DAS1602 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-DAS1602-12 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 5µS for the PCI-DAS1602-16 and 3µS for the PCI-DAS1602-12.

Connector
All I/O signals are brought through a 100-pin high-density connector. Field wiring is greatly simplified by using the optional C100-FF2 cable and CIO-TERM100 screw terminal board.

Software
The PCI-DAS1602 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-DAS1602 in LabView.
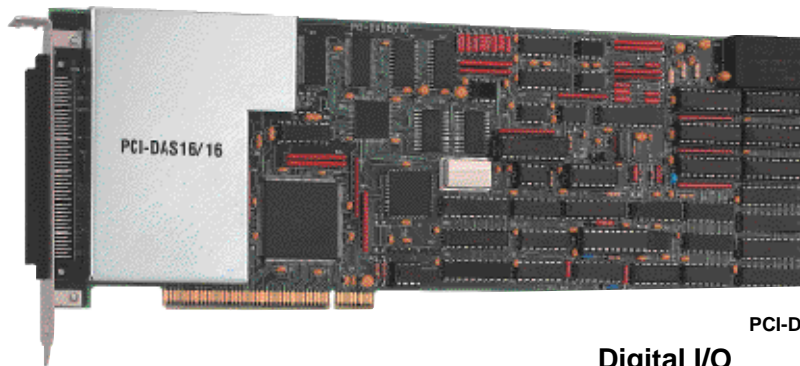
PCI-DAS1602-16

Specifications

(Typical for 25°C unless otherwise specified)

Analog Inputs

	PCI-DAS1602-16	PCI-DAS1602-12
Resolution	16-bits (input range/65536)	12-bits (input range/4096)
Throughput	200 KHz min	330 KHz min
Input Ranges (Software selectable)	±10V, ±5V, ±2.5V, ±1.25V, 0-10V, 0-5V, 0-2.5V, 0-1.25V	
Differential Linearity Error	±1 LSB	±0.75 LSB
Integral Linearity Error	±1.5 LSB	±1.5 LSB
Gain Drift (A/D Specs)	±20 ppm/°C, all ranges	±6 ppm/°C, all ranges
Zero Drift (A/D Specs)	±10 ppm/°C, all ranges	±1 ppm/°C, all ranges
Input Impedance	10 MΩ Min	
Absolute Maximum Input	±15V	
Trigger	Digital and Analog with unlimited pre and post trigger samples.	

Analog Outputs

	PCI-DAS1602-16	PCI-DAS1602-12
Resolution	16-bits	12-bits
Number of Channels	2	
Voltage Ranges	±10 V, ±5 V, 0-5 V, 0-10 V	
Offset Error	±100 µV max,	±100 µV max,
Gain Error	±30.5 ppm max (calibrated)	±0.02% max (calibrated)
Differential Nonlinearity	±1 LSB max	±1 LSB max
Integral Nonlinearity	±1 LSB max	±0.5 LSB max
Output Impedance	0.1 Ohms max	0.1 Ohms max
Data Transfer Throughput Rate	100 KHz	250 KHz
D/A Trigger Modes	Software or external gate	
Current Drive	±5 mA	
Output Short Circuit Duration	25 mA indefinite	

Digital I/O
Digital I/O: 24
Logic low level: -0.5 to 0.8 V max
Logic high level: 2.0 to 5.0 V max
Input current:
5 mA max (1602-16),
10µA max (1602-12)
Output low sink current:
64 mA @ 0.55V (1602-16),
2.5 mA @ 0.45 V (1602-12)
Output high source current:
-15 mA @ 2.0V(1602-16),
-2.5 mA @ 2.4 V(1602-12)

Counter/Timers
Number available to user:
One 16-bit down counter
Type: 82C54
Logic low level: -0.5 to 0.8 V max
Logic high level: 2.0 to 5.0 V max
Max input frequency: 5 MHz

Environmental
Operating temperature range:
0 to 70°C
Storage temperature range:
-40 to 100°C
Humidity: 0 to 90% non-condensing

Power consumption
ICC Operating:
2.1 A max (DAS-1602-16),
1.6 A max (DAS-1602-12)

To Order (Specify Model Number)

Model No.	Price	Description
PCI-DAS1602-16	$1197	16 channel, 16-bit analog I/O board
PCI-DAS1602-12	799	16 channel, 12-bit analog I/O board
C100-FF2	49	100 conductor cable
CIO-TERM100	149	100 terminal screw terminal adapter board
UNIV-DRVR	49	Universal Driver Library
CIO-LABVIEW-DRVR	49	LabVIEW driver, requires Universal Driver Library

Note: The PCI-DAS1602 comes with a complete operator's manual and test and calibration software.
Ordering Example: PCI-DAS1602-16 board, CIO-TERM100 terminal panel, C100-FF2 cable and Universal Driver Library,
$1197 + 149 +49 +49 = $1444.