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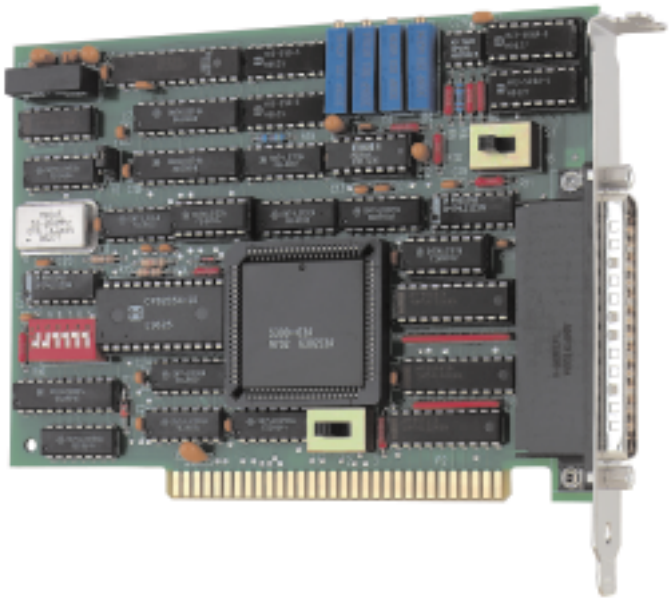
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Find the *Measurement Computing / ComputerBoards CIO-DAS16/JR* at our website: *Click HERE*

CIO-DAS16/Jr

VERY LOW COST - High Speed 16 Channel 12 Bit Analog Input, 8 DIO, 3 CTRs



ANALOG INPUT - DAS16 STYLE

The CIO-DAS16/Jr multifunction analog and digital I/O board is 100% compatible with the DAS-16 analog input. It is smaller, acquires data faster and consumes less power. Designed for applications where price is a factor and only analog input is desired, the CIO-DAS16/Jr provides:

* Data acquisition at 110KHz with existing DAS-16 software.
* Fully programmable gain.
* Smaller footprint, fewer components.
* Consumes only 5V from PC.
*OEM Power engine for analog data acquisition.

DAS16 FAMILY COMPATIBILITY

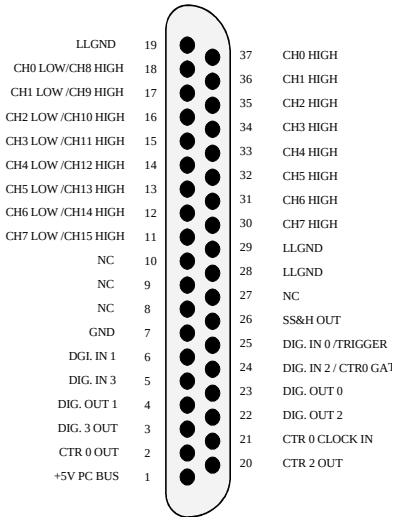
ComputerBoards designed the CIO-DAS16/Jr to be register and connector compatible with the most popular family of data acquisition boards available; the DAS-16 family. Currently ComputerBoards offers 10 different configurations of DAS-16 and virtually every data acquisition software package supports the DAS-16 register set.

If you have applications designed for the DAS-16 and are ready to propagate those either within your facility or as a commercial product, these smaller, less expensive DAS16s may be just what you need. As the following diagram shows, connector compatibility is assured.

The 37 pin D connector on the CIO-DAS16/Jr is identical to that of the CIO-DAS16.

Of course, the pins which carry analog output signals on the CIO-DAS16 are no-connect (NC) on the Jr. boards. These pins are left floating rather than tied to ground or some other signal. That way an existing cable with a signal on it is not a problem.

Because of Computer Boards' strict adherence to standards, accessory boards, cables and all of your existing hook-ups are 100% compatible with the CIO-DAS16/Jr connector.



ANALOG INPUTS

The analog input section of the CIO-DAS16/Jr. has been designed for flexibility and accuracy in a number of configurations and ranges. The analog signals are brought on board by a standard 37 pin D connector directly to two multiplexors. The two multiplexors may be configured as 16 channels of single ended input or 8 channels of differential input. Differential inputs can reject noise and ground loops (common mode voltages) but require a 3 wire hookup as opposed to 2.

Signals are amplified by a programmable gain amplifier prior to conversion by the A/D converter. The programmable gain and range of the CIO-DAS16/Jr provides complete unipolar and bipolar signal to input matching.

An integral sample & hold captures the signal which is then converted by the A/D converter. The 12 bit A/D converter provides a resolution of 1/4096 parts of full scale with +/-1 1LSB of accuracy.

The speed of data gathering is dependent on the method of triggering and data transfer. Direct Memory Access (D.M.A.) provides the fastest convert & transfer rate. Interrupt routines are slower. In general, with todays 486 class or better machines, you can depend on acheiving 100KHZ under DOS. When using Windows, the speed you achieve may depend on the stystem demands placed by other tasks.

If you require top speed operation under Windows, please consider the CIO-DAS1400 which has a FIFO buffer and can perform at full speed in most Windows environments.

NOW! CIO-DAS16Jr. + CIO-CTR05

One of our customers called and just had to have it! "Please combine a CIO-DAS16/Jr and a CIO-CTR05 on one board" he asked. WE DID and we're offering this board to all our customers who have applications calling for high speed analog input and complex counter-timers.

The CIO-DAS16JR/CTR multifunction analog, digital I/O and counter board is 100% compatible with the DAS-16GZ and CTM-05 (MetraByte). For complete information on this board, see the catalog pages for CIO-DAS16/Jr and CIO-CTR05; or call technical support.



I/O & CONTROL REGISTER MAP

The CIO-DAS16/Jr. and MetraByte DAS-16 are 100% software compatible because the I/O register have identical functions on each board. I/O registers are the locations to which the computer writes commands and from which, status and data are read.

I/O ADDR.	CIO-DAS16/Jr. FUNCTION R/W	I/O ADDR.	CIO-DAS16/Jr. FUNCTION R/W
BASE + 0	A/D Low Byte / Start A/D	BASE + 8	A/D Status / NA
BASE + 1	A/D High Byte / NA	BASE + 9	Control Settings / Control
BASE + 2	Mux Settings / Mux Scan Control	BASE + 10	NA / Counter Source Control
BASE + 3	Digital 4 In / Digital 4 Out	BASE + 11	Gain & Range
BASE + 4	**Not Used: These 4 registers are the**	BASE + 12	Counter 0 / Counter 0 Load
BASE + 5	**DAS-16 D/A control registers, and**	BASE + 13	Counter 1 / Counter 1 Load
BASE + 6	**are not used so that existing DAS-**	BASE + 14	Counter 2 / Counter 2 Load
BASE + 7	**16 software will be compatible.**	BASE + 15	NA / 8254 Counter Control

GAIN & RANGE SELECTION

No need to set switches to select an analog input range. The analog input range is fully programmable. A single write to Base + 11 controls both the unipolar/bipolar setting and the amplification of the analog input signal. The gain register, located at the board's Base + 11 address, is an eight bit register. The lower four bits control the gain and range.

D7	D6	D5	D4	D3	D2	D1	D0
X	X	X	X	Range	U/B	G1	G0

RANGE = The A/D chip input range, either 10V full scale or 20V full scale. 0 = 10V, 1 = 20V.

U/B = Unipolar or Bipolar ranges. 0 = Bipolar, 1 = Unipolar.

G1 G0 = the gain of the input amplifier. 0,0 = X1. 0,1 = X2. 1,0 = X4. 1,1 = X8.

Ranges are: 0-10V, 0-5V, 0-2.5V, 0-1.25V
and +/-10V, +/-5V, +/-2.5V, +/-1.25V, +/-0.625V

A/D SPECIFICATIONS

Analog to Digital Resolution	12 Bit, 1 part in 4096
Channels	16 SE or 8 Differential
A/D Type	Successive Approx. ADS 7800
Conversion Time	3 uS
A/D Convert & Transfer Speed	100min, 120KHz typ
Accuracy	0.01% +/- 1 LSB
Integral Linearity	+/- 1 LSB
No missing codes over temp. range.	
Maximum Overvoltage	+/- 35V Continuous
Input Leakage Current	250 nA Max @ 25°C
Gain Drift	+/- 25 ppm/Deg C Max
Zero Drift	+/- 10 ppm/Deg C Max

GAIN & RANGE

CIO-DAS16/Jr	0-10V, 0-5V, 0-2.5V, 0-1.25V, +/-10V, +/-5V, +/-2.5V, +/-1.25V, +/-0.625V

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