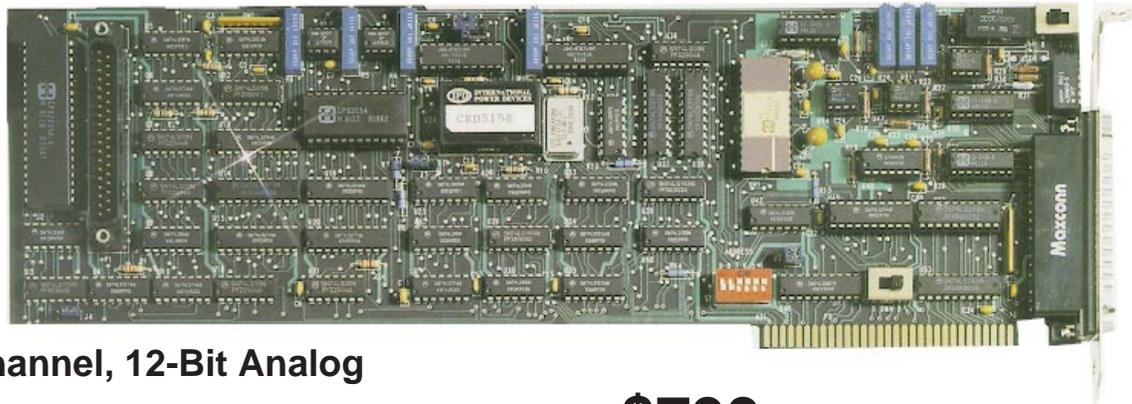


CIO-DAS16 and CIO-DAS16F

Multifunction Analog and Digital I/O Board for IBM Compatibles



- ✓ **16 Channel, 12-Bit Analog Input**
- ✓ **2 Channel, 12-Bit Analog Output**
- ✓ **32 Channels of Digital I/O**
- ✓ **Labview Support**

The CIO-DAS16 is an economical multifunction analog and digital I/O card. Installed in any IBM or compatible computer, the CIO-DAS16 transforms your PC into a high-speed data acquisition and control station suitable for laboratory data collection, instrumentation, production testing or industrial monitoring.

The analog input section of the CIO-DAS16 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 multiplexers, which may be configured as 16 channels of single ended input or eight channels of differential input. Gain switches accessible from the rear of the card provide gain ranges of 0.5, 1, 2, 5 and 10. The 12-bit A/D converter provides a resolution of 1/4095 parts of full scale. The speed of data gathering is dependent on the method of triggering and data transfer, as the table to the upper right illustrates.

The CIO-DAS16 has 32 digital lines available. Eight digital I/O lines (4 inputs and 4 outputs) are accessed from the CIO-DAS16's main connector from the rear of the computer. The remaining 24 lines, which are programmable as inputs and outputs in groups of eight, are accessed through an auxiliary connector. A separate terminal panel and cable is required for the auxiliary connector.

Analog voltage output is provided by two 12-bit multiplying D/A converters which accept a reference voltage and provide a proportional

\$799 Basic Unit

output. A precision -5V reference from the A/D converter provides an on-board D/A range of 0-5V. Other ranges between +/-10V are possible if you supply a +/-10V external reference. A trigger is the event that begins an acquisition/transfer cycle. There are three ways to trigger a CIO-DAS16: software, internal or external. There are also three ways to transfer data from the CIO-DAS16: program, interrupt service routine or DMA.

For simultaneous sample and hold, the CIO-DAS16 works with the CIO-SSH16 simultaneous sample and hold accessory board.

The 8254 counter/timer chip has three counters of 16 bits each. Much of the 8254 is used by the CIO-DAS16 as a pacer clock to synchronize A/D conversion. One full counter (counter 0) is available for counting, pulse generation or frequency measurement. The output of counter 2 is available to provide external synchronization to the A/D converter or as a programmable rate source.

Optional software drivers are available for users writing their own programs. The UNIV-DRVR universal library packages provides support for both DOS, Windows 3.1 and Windows 95. DOS support includes QuickBasic 4.5, Visual Basic, Turbo C, Visual C++ and Microsoft C.

Windows support includes Microsoft C, Visual C++, Visual Basic, Borland C, C++ and Delphi. 32-bit drivers are also available on special request. Optional Labview drivers are also available.



**CIO-MINI37 (left)
CIO-TERMINAL (bottom)**

SPECIFICATIONS

A/D: 12 Bit successive approx. AD74 Series

Channels: 16 single-ended or 8 differential

Conversion Time: 8.5 uSec for CIO-DAS16F, 15 uSec for CIO-DAS16

A/D Convert & Transfer Speed (DMA): 100Khz CIO-DAS16F; 50Khz CIO-DAS16

Accuracy: 0.01% +/-1 Least Significant Bit

Integral Linearity: +/-1 LSB

Maximum Overvoltage: +/-35V continuous

Input Leakage Current: 250 nA max @ 25C

Gain Drift: +/-25 ppm/C max.

Zero Drift: +/-10 ppm/C max.

ANALOG OUTPUTS

Channels: 2

D/A Type: multiplying 4 quadrant

Conversion Time: 30 nsec to 0.01%

Integral Linearity: +/-1/2 LSB

Differential Linearity: +/-1/2 LSB

Reference Range: +/-10V

Output Range: +/- 10V, reference dependent

Current Out: +/-5 mA min

DIGITAL I/O

Input/Output: 24 bits, 8255, three 8 bit ports (located on rear connector of board)

Input Only: 4 bits, 74LS244 (on main connector)

Output Only: 4 bits, 74LS374 (on main connector)

Input Low Volts: 74LS244, 0.8V max; on 8255, 0.5V max

Input High Volts: 74LS374, 2.0V min @ 20uA; on 8255, 2.0V min, 7.0 V max

Output Low Volts: 74LS374, 0.5V max @ 8.0 ma; on 8255, 0.5V max @ 2.5ma

Output High Volts: 74LS374, 2.4V min @ -0.4 ma; on 8255, 2.4V min @ -200 uA

ENVIRONMENTAL

Operating Temp: 0-50C (32-122F)

Humidity: 0-90% non-condensing

Dimensions: 356mm W x 101mm H (14" x 4")

Weight: 290g (10.25 oz)

To Order (<i>Specify Model Number</i>)		
Model Number	Price	Description
CIO-DAS16	\$199	Multifunction Board
CIO-DAS16F	349	Multifunction Board with gains of 0.5, 1, 10, 100, 500, 1000
CIO-SSH16	399	16 channel Simultaneous Sample and Hold board. Only 4 channels installed. Requires any C37FF cable.
CIO-SSH-AMP	39	Additional sample & hold amps for CIO-SSH16
CIO-TERMINAL	99	16" x 4" screw terminal board with prototype area, requires any C37FF cable
CIO-MINI37	49	4" x 4" screw terminal board, requires any C37FF cable
C37FF-2	25	2 foot cable with female connectors
C37FFS-5	30	5-foot shielded cable, 37-pin with female connectors
C37FFS-10	40	10-foot shielded cable, 37-pin with female connectors
BP37	23	Cable assembly. Brings out rear 37-pin digital IO connector on CIO-DAS08 to back of PC. Requires any C37FF cable and CIO-MINI37
BP-CABLE	25	Brings 5Vdc power from inside PC to rear backplate of computer. Used for powering CIO-ERB24 and SSR-RACK24 relay panels
SSR-RACK24	149	24 channel solid state relay rack Requires AC or DC modules.
AC05-C	15	AC output module
ACI5-C	15	AC input module
DC05-C	15	DC output module
DCI5-C	15	DC input module
UNIV-DRVR	49	Universal Drivers for DOS or Windows
CIO-Labview-Drvr	49	Labview Drivers. Requires UNIV-DRVR

**For Sales and Service
1-800-826-6342**