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DaqBoards™

Plug-In Data Acquisition Boards for ISA Desktop PCs
Models /100A, /112A, /200A, & /216A



Features

- Complete ISA-bus based data acquisition solutions
- Plug into a desktop PC's ISA-bus slot
- Analog input:
 - 100-kHz A/D converter, 12 bit (100A series) or 16 bit (200A series)
 - 100 Kreadings/s sampling & real-time storage-to-disk
 - 8 differential or 16 single-ended inputs, expandable to 256 channels
 - channel/gain sequencing at 10 μ s intervals, including up to 256 expansion channels
 - 512-location scan memory for user-defined channel/gain sequencing of up to 256 channels
 - x1, 2, 4, or 8 programmable gain (other gains available with option cards)
 - triggerable from analog, digital, or software, including pre-trigger
- Two 12-bit analog outputs with 500-kHz update rate per channel
- Digital I/O:
 - 24 general-purpose digital I/O lines, expandable to 192
 - 16 high-speed digital-input lines, scannable at up to 100 kHz
- Five programmable 16-bit counter/timers

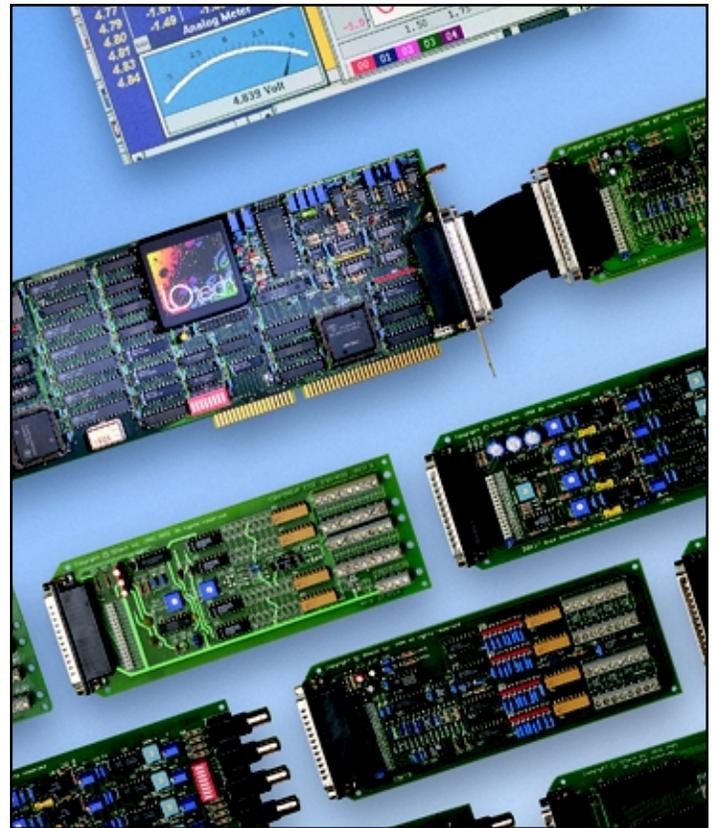
Signal Conditioning Options

- Expansion cards & modules for high-voltage/current, strain gages, thermocouples, isolation, relays, accelerometers, filtering, & simultaneous sample & hold (see p. 112)

Software (see p. 98)

- DaqView™, spreadsheet-style software for *Out-of-the-Box™* setup, acquisition, & real-time display
- DIAdem®-View, for post-acquisition viewing of data files
- Drivers for Visual Basic® & C++ for Windows® 3.x/95/98/NT; C & Pascal for DOS; & DASYLab®, Snap-Master™, & LabVIEW®

Iotech's DaqBoards provide cost-effective, high-performance data acquisition for up to 256 mixed signal inputs



The DaqBoard family of ISA-bus plug-in boards provides the widest selection of signal conditioning, signal expansion, and software support of any available PC-based data acquisition system. Every DaqBoard model features an on-board 512-location sequencer that lets you select any channel and gain combination and configure each channel for unipolar/bipolar operation as your application requires. The DaqBoards can scan channels at 10 μ s/channel, and repeat a sequence at intervals from 0 seconds to nearly 12 hours. Optional simultaneous sample and hold cards enable the DaqBoards to sample up to 256 channels at the same instant.

Unlike many PC-based data acquisition products, our DaqBoards meet their scanning and timing specifications even when connected to a full complement of signal conditioning and expansion boards or modules. The DaqBoards measure signals from expansion channels—including per-channel gain switching—at their 10 μ s/channel maximum rate. This enables a DaqBoard system to scan different

types of transducers, from thermocouples to strain gages, within the same scan group without software intervention.

The DaqBoards support three data transfer modes—DMA, interrupt-driven, and REP INSW—permitting continuous real-time data collection at 100 Kreadings/s.

The DaqBoards' broad-ranging software support offers you the solution that best suits your application. Specifically, the DaqBoards include three categories of software support: graphical Windows® set up and acquisition programs; programming language drivers and custom controls; and drivers for icon-driven, Windows®-based software packages. In contrast, many vendors charge extra for language and third-party software drivers.

For fill-in-the-blank-style applications that require no programming, we include two Windows® programs along with each DaqBoard: DaqView, a setup and data acquisition package, and DIAdem-View, a post-acquisition waveform-display package.

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DaqBoards™

General Information

DaqView software (see p. 107) lets you select desired channels, gains, transducer types (including thermocouples), and a host of other parameters with a click of your PC's mouse. It also lets you stream data to disk and lets you display data in either numerical or graphical formats. DIAdem®-View, our post-acquisition waveform-viewing package, permits the simultaneous viewing of up to 16 channels of acquired data (see p. 198).

The DaqBoards and their expansion and signal conditioning options are also supported by icon-based software packages that are virtually unmatched by any other data acquisition board in their class. Currently, the DaqBoards are supported by DASyLab® (see p. 194), and LabVIEW® for Windows®.

Channel-Scanning Flexibility

The DaqBoards offer a 512-location scan sequencer that allows you to select each channel and associated input amplifier gain at random. The sequencer circuitry circumvents a major limitation encountered with many plug-in data acquisition boards—a drastic reduction in the scan rate for external expansion channels. All DaqBoard channels are scanned, including the 256 potential expansion channels, at 100 kHz (10 μ s/channel). DaqBoards use the same scanning technique as the DaqBooks. For more complete information, see p. 73 in the DaqBook section.

Flexible Triggering

The DaqBoards offer both analog and digital triggering capabilities. For example, the units permit you to trigger on the analog input level from any one channel, and also allow you to program the slope and polarity of the trigger level. Also, because the DaqBoards feature a hardware-based trigger, they minimize trigger latency to less than 10 μ s. In contrast, plug-in boards that employ software-polling triggers have typical trigger-to-A/D conversion latencies of 100 μ s or more. The DaqBoards can also be triggered from a TTL-level digital input or from a command from the PC. Pre-trigger* data up to 32 Ksamples can be collected using any analog channel as the triggering event.

Analog Input

The DaqBoards' built-in analog input capability permits them to measure 8 channels in a differential input mode, or 16 channels in a single-ended mode. Single-ended or differential mode is software selected by a command from the PC. Their on-board programmable gain instrumentation amplifiers can be sequencer selected to x1, 2, 4, or 8 on a per-channel basis. Unipolar/bipolar operation has the same flexibility. Other gains can be obtained via expansion cards. The DaqBoard A/D converter scans selected channels at a constant 10 μ s/channel rate, minimizing the time skew between consecutive channels. The time between the start of each scan sequence can be programmed to repeat immediately upon completion of the scan group or at intervals of up to 12 hours. Our DBK expansion cards (see p. 112) permit the DaqBoard to be expanded up to 256 channels while maintaining its 10 μ s per channel scan rate. For applications that require simultaneous sampling of multiple channels, use DBK17™ (see p. 134), or DBK45™ (see p. 158).

Analog Output

The DaqBoards have two 12-bit D/A converters that allow you to generate voltages or waveforms of 0 to +5V. In addition, with a bipolar external reference, output voltages between -10 VDC and +10 VDC may be obtained. One D/A converter is internally wired to the analog trigger comparator, and can be software programmed to act as either the trigger-level setting or the second analog output channel. Waveforms up to 2 Ksamples deep per channel can be loaded into the boards' built-in FIFO via DMA and can be output at up to 500 kHz per D/A converter. The D/A converter's clock may be selected using the on-board time base, which supplies four frequencies (10 MHz, 5 MHz, 1 MHz, or 100 kHz). The boards can also use an externally supplied clock via the P1 or P3 port.

High-Speed Digital Input

The DaqBoard/100A™ and /200A have the ability to scan 16 TTL-level digital inputs as part of the user-defined scan sequence. Thus, the boards can acquire the state of all 16 high-speed digital input lines within an analog scan sequence. The DaqBoards transfer the acquired digital word to the PC within the same data stream as the acquired analog data, eliminating the need for special data handling by the software.

General-Purpose Digital I/O

The DaqBoard/100A and /200A also include 24 general-purpose digital I/O lines, programmable in 8-bit groups as either inputs or outputs. Digital I/O capacity can be expanded up to 192 lines with the addition of optional expansion cards. The digital I/O lines can not be accessed by the PC while the DaqBoards are transferring data from the A/D converter via DMA or interrupts. If an application requires digital inputs with critical timing, the boards' 16 high-speed digital inputs should be used.

Frequency/Pulse Input

The DaqBoard/100A and /200A provide five 16-bit counter/timers that can be programmed for a wide variety of functions. For frequency measuring applications, each channel can count frequency inputs up to 7 MHz, with programmable gate time from 1 μ s to 655 seconds. If expansion beyond the 16-bit capacity of a single channel is required, the boards permit channels to be cascaded via software. Also, each channel can be configured for pulse-counting or totalizing applications—wherein the number of received pulses is accumulated, permitting pulse accumulation concurrent with the measurement of analog input channels. The boards also permit the width of a digital input pulse to be measured on each channel, with resolution to 1 μ s.

* Pre-trigger is a software function, and dependent on PC performance

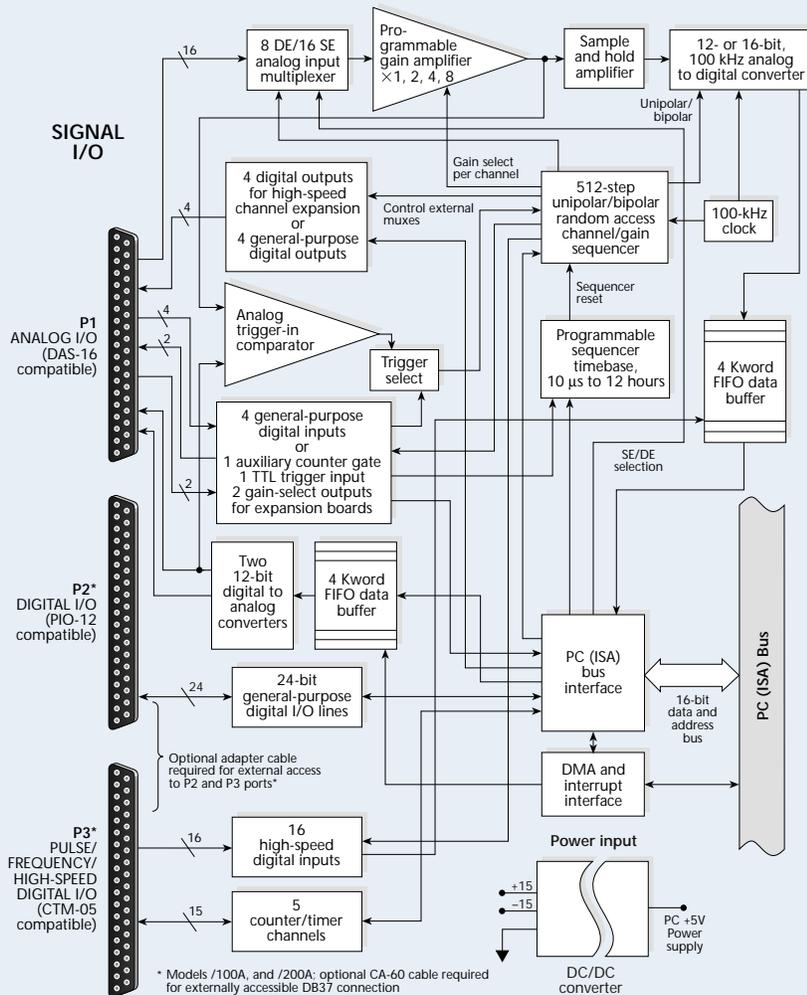
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DaqBoards™

General Information

DaqBoard Block Diagram (Models /100A, /112A, /200A, & /216A)



with a DB37 connector that is compatible with that on Keithley/MetraByte's DAS-16. Similarly, the optional CA-60 adapter cable makes the DaqBoards' P2 digital I/O port compatible with that on Keithley/MetraByte's PIO-12 board and the DaqBoards' P3 counter/timer port compatible with that on their CTM-05 board. (The DaqBoards' P2 and P3 hardware is also register compatible with the PIO-12 and CTM-05 hardware.) This means that the DaqBoards can be used with options and cabling developed for these other boards.

The DaqBoards are available in four different 12- and 16-bit configurations, with varying I/O capabilities. All DaqBoards can be used with DBK series signal conditioning and expansion products (see p. 112). Complete DaqBoard Series and DaqBoard Signal Conditioning & Expansion Options selection guides follow (see p. 95), as do examples of system configurations.



Pulse/Frequency Output

In pulse/frequency output modes, the DaqBoard/100A's and /200A's five counter/timer channels can each be independently programmed to perform one of several functions. In the pulse-generation mode, a single pulse of programmable width can be generated from DC to 500 kHz. In the frequency-generation mode, the DaqBoards can generate a square wave of duty cycle from 0.0005% to 99%, with frequencies up to 1 MHz. An external time base can also be input to achieve other frequency outputs. Each of

the DaqBoards' counter/timer channels have a one-shot output mode that can generate a pulse output in response to a hardware or software trigger input. The pulse begins at a programmable delay from 1 μ s to 655 seconds after receipt of the trigger.

Plug-in Board Compatibility

The DaqBoards emulate popular data acquisition plug-in boards from Keithley/MetraByte, Omega, Computer Boards, and Advantech. For example, the DaqBoards' P1 analog I/O port is equipped

In the typical system shown above, three DBK analog cards are daisy chained in a DBK10™ chassis and attached to the DaqBoard's P1 analog I/O connector. The DBK11A™ provides screw-terminal access to the DaqBoard's on-board analog input and output channels; the DBK15™ card provides 16 channels of current or voltage input; and the DBK17™ provides four channels of simultaneous sampling. The cards are housed in the DBK10 expansion enclosure (shown with cover removed). The ribbon cables are CA-131-1T and CA-37-2.

PC Data Acquisition Hardware

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DaqBoards™

Selection Guide & System Examples

DaqBoard Series Selection Guide				
Model	DaqBoard/100A	DaqBoard/112A	DaqBoard/200A	DaqBoard/216A
Analog Input				
A/D resolution	12 bit	12 bit	16 bit	16 bit
No. of analog input channels	8 DE, 16 SE			
Maximum channel capacity	256	256	256	256
A/D speed	100 kHz	100 kHz	100 kHz	100 kHz
Unipolar/bipolar selection	sequencer	sequencer	sequencer	sequencer
Single/differential selection	software	software	software	software
Channel/gain sequencer depth	512	512	512	512
Analog output				
Maximum update rate	500 kHz	500 kHz	500 kHz	500 kHz
No. of output channels	2	2	2	2
D/A resolution	12 bit	12 bit	12 bit	12 bit
High-speed digital inputs				
No. of bits	16		16	
Maximum scan rate	100 Kwords/s		100 Kwords/s	
Programmable digital I/O				
No. of programmable I/O lines	24		24	
Maximum channel capacity	192		192	
Fixed digital I/O				
	4 in, 4 out*			
Programmable counter/timers				
No. of channels	5		5	
Maximum frequency input	7 MHz		7 MHz	
Other counter inputs				
	1 ch, 8 MHz*			
Bus interface				
Software	ISA	ISA	ISA	ISA
Form factor				
Size	114 mm X 333 mm			
Size	4-1/2" x 13-1/8"	4-1/2" x 13-1/8"	4-1/2" x 13-1/8"	4-1/2" x 13-1/8"

* Accessible only if no analog expansion cards are in use



Access to the DaqBoard analog, digital and counter port is easy. Here, the P1 analog I/O connector is attached to a DBK15 16-channel current/voltage multiplexing card. The P2 digital I/O port and the P3 frequency I/O port are each connected to DBK11A screw-terminal cards. The cards are housed in the DBK10 three-slot expansion enclosure (shown with cover removed) and each is connected to the PC via a CA-131-1T cable. Two optional CA-60 cables installed within the PC bring P2 and P3 signals from the DaqBoard to the PC's rear panel.

DaqBoard Signal Conditioning & Expansion Options			
Product	Description	Capacity	Page
DBK1	16-connector BNC interface module	16 connectors	117
DBK2	D/A voltage-output card	4 channels	118
DBK4	dynamic signal input card	2 channels	119
DBK5	current-output card	4 channels	121
DBK7	frequency input card	4 channels	123
DBK8	high-voltage input card	8 channels	125
DBK9	RTD measurement card	8 channels	126
DBK10	expansion-card enclosure	3 cards	127
DBK11A	screw-terminal card	40 terminals	128
DBK12	programmable low-gain analog input card	16 channels	129
DBK13	programmable high-gain analog input card	16 channels	129
DBK15	universal current/voltage input card	16 channels	130
DBK16	strain gage expansion card	2 channels	132
DBK17	simultaneous sample and hold card	4 channels	134
DBK18	low-pass filter card	4 channels	136
DBK19	high-accuracy thermocouple card	14 channels	138
DBK20	general-purpose digital I/O card (screw terminals)	48 channels	140
DBK21	general-purpose digital I/O card (male DB37 connectors)	48 channels	140
DBK23	optically isolated digital-input module	24 channels	141
DBK24	optically isolated digital-output module	24 channels	143
DBK25	relay output card	8 channels	145
DBK32A	auxiliary power supply	±15 VDC @ 500 mA	147
DBK33	triple-output auxiliary power supply	±15 VDC @ 250 mA & ±5 VDC @ 1000 mA	147
DBK40	18-connector BNC interface	18 connectors	149
DBK41	analog expansion enclosure	10 cards	150
DBK42	multi-purpose isolated signal-conditioning module	16 channels	152
DBK43A	strain gage module	8 channels	154
DBK44	multi-purpose isolated signal-conditioning card	2 channels	156
DBK45	simultaneous sample and hold card with low-pass filter	4 channels	158
DBK50	isolated high-voltage input module	8 channels	160
DBK51	isolated low-voltage input module	8 channels	160
DBK52	high-accuracy thermocouple module	14 channels	162
DBK53	programmable low-gain analog input module	16 channels	163
DBK54	programmable high-gain analog input module	16 channels	163
DBK60	3-slot expansion module w/customizable panels	3 cards	164



For large systems, the DBK41™ ten-slot expansion module attaches to the DaqBoard P1 analog I/O connector to accommodate any combination of analog DBK signal conditioning and expansion cards. The cards simply plug into the backplane of the DBK41; the unit, which is shown with the cover removed, accommodates up to 10 analog cards. A CA-131-1T ribbon cable attaches the DBK41 module to the DaqBoard P1 analog I/O connector.

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DaqBoards™ Expansion



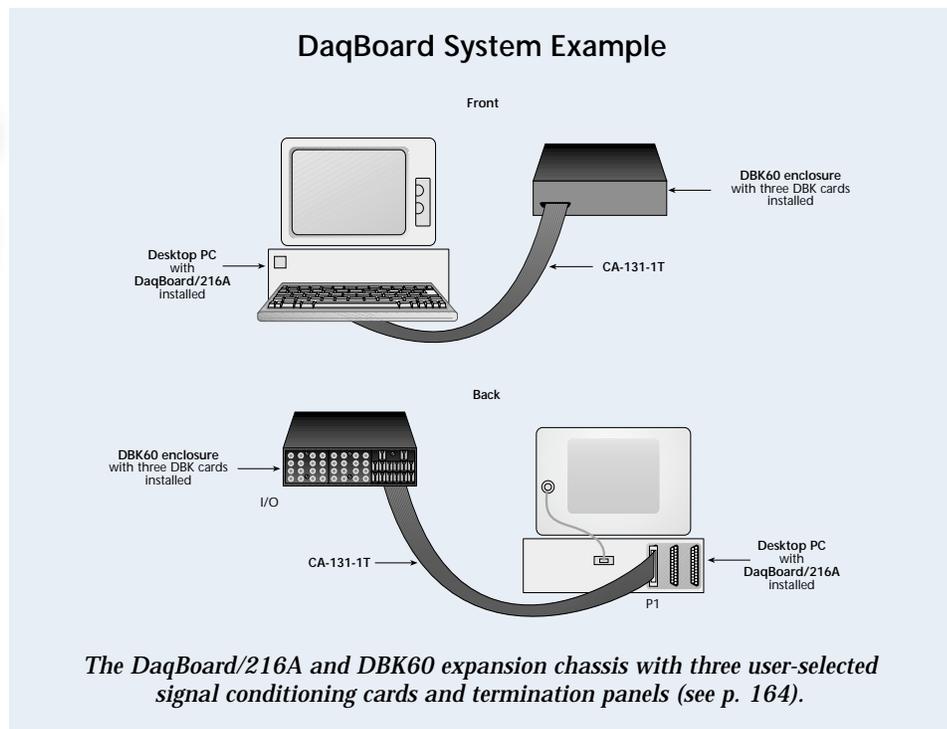
The DaqBoard attaches easily to the DBK60™ expansion module which provides three slots for signal conditioning cards and a choice of termination panels.

The DaqBoards can be easily expanded beyond their built-in channel capacity via our wide ranging DBK series of expansion, signal conditioning, and power supply options.

Analog Input Expansion

All DBK series analog expansion cards are designed to daisy-chain to the P1 analog connector found on all DaqBoards.

Because the DaqBoards feature an on-board channel/gain sequencer, they can directly address up to 256 channels, enabling the scanning of all expansion channels at the same 10 μs rate as on-board channels.



When equipped with analog input expansion cards, the DaqBoards are configured for 16 single-ended inputs. Each 16-channel expansion card consumes one of the DaqBoards' on-board analog channels; consequently, a maximum of sixteen 16-channel cards can be accommodated, for a total of 256 channels. DBK series cards with only two or four channels can share the same DaqBoard base channel to maintain the 256 channel maximum.

When analog expansion cards are in use, unused DaqBoard base channels are available to measure input signals.

Analog Input Card Housing

The DBK analog input expansion cards can be housed in a variety of ways. Your choice will depend on the number of cards required by your system.

If your application requires six or fewer cards, the slim 3-slot DBK10 expansion card enclosure is a good choice. The DBK10 requires a CA-37-1T cable for daisy chaining the analog expansion cards. The DBK10 enclosures can easily be stacked together.

If your application requires more than six expansion cards, or if you want to allow for future system expansion, the compact 10-slot DBK41 analog expansion card enclosure is the preferred solution.



DaqBoards™ Expansion

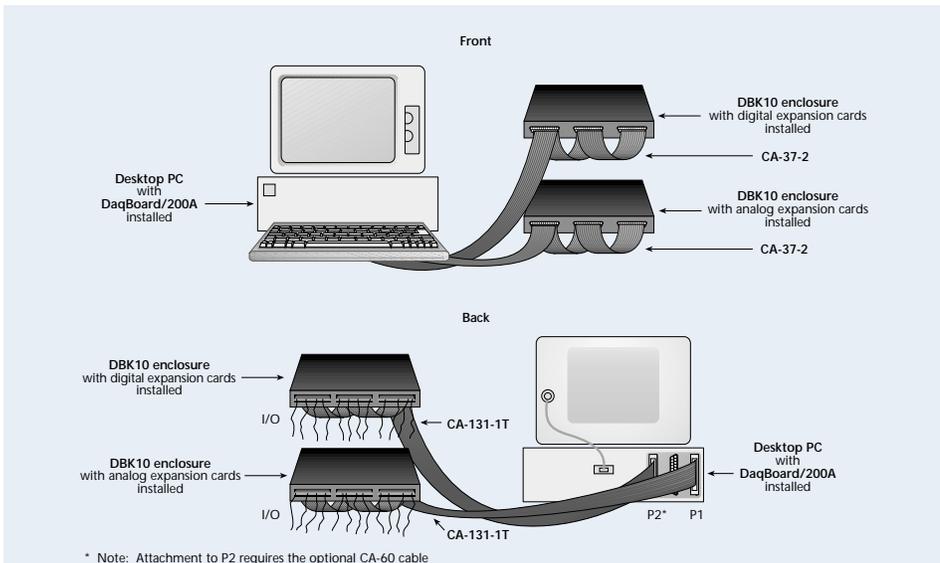
Powering Analog Cards

Every DaqBoard features a built-in power supply of sufficient capacity to power several analog expansion cards. However, if the number of cards in your application requires

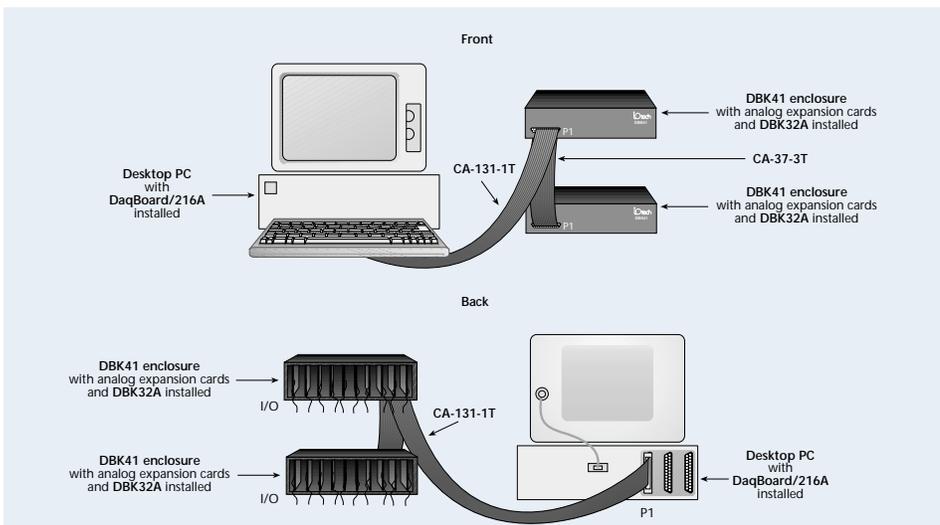
more power than can be obtained from the built-in DaqBoard power supply, the DBK32A™ power supply card (see p. 147) is available to meet your system's power needs.

The DBK32A attaches directly to the P1 analog expansion bus and supplies power to all connected analog expansion cards up to the rating of the DBK32A. The DBK32A can be powered from an included AC adapter, an optional DBK30A rechargeable battery/excitation module, or from any +10 to +20 VDC source, such as a car battery.

DaqBoard System Examples



The DaqBoard/200A with three digital expansion cards and three analog expansion cards housed in two DBK10 three-slot expansion enclosures



The DaqBoard/216A with 18 analog expansion cards and two DBK32A power supply cards housed in two DBK41 ten-slot expansion card enclosures

When installed in the DBK10 three-slot expansion enclosure (see p. 127), the DBK32A is attached via the CA-37-2 cable. If used with the DBK41 ten-slot expansion card enclosure, it simply installs into one of the analog expansion slots on the unit's backplane.

Digital I/O Expansion

The DaqBoard/100A and /200A are each equipped with 24 digital I/O channels. You can expand their digital I/O capacity up to 192 channels via the use of DBK series digital I/O cards. These cards are powered from the built-in DaqBoard power supply, and can be housed in the DBK10 three-slot expansion enclosure.

When using digital I/O expansion cards, make sure to use the appropriate cable and daisy chain the cards to the DaqBoard P2 digital I/O connector, rather than to the P1 analog I/O connector. Connection to the P2 port is accomplished via the optional CA-60 adapter cable, which brings signals from the rear of the DaqBoard to a connector that can be accessed via a spare slot in the PC's rear panel.

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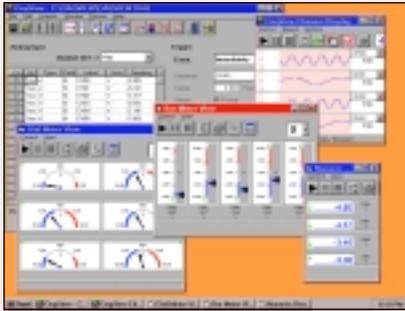


3 Levels of Software Support for Daq Products™



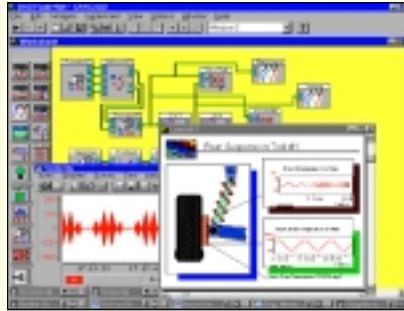
Iotech's Daq product line is supported by three levels of software, allowing you to choose the package that best fits your application and your skill level.

Out-of-the-Box™ DaqView™



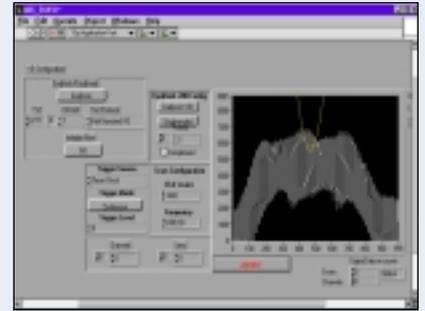
DaqView graphical data acquisition and display software is included with all DaqBook, TempBook, ISA-based DaqBoard, and Daq PC-Card systems. Using DaqView software's spreadsheet-style interface, you can easily set up your application and begin taking data within minutes of connecting your hardware, with no programming required. See p. 107 for a full description.

Icon-Based DASYLab®



If your application requirements go beyond the scope of DaqView, DASYLab software offers a greater degree of flexibility and customization. You can teach yourself DASYLab in a matter of days, without the weeks of training required for some other icon-based application-development software. See p. 194 for a full description.

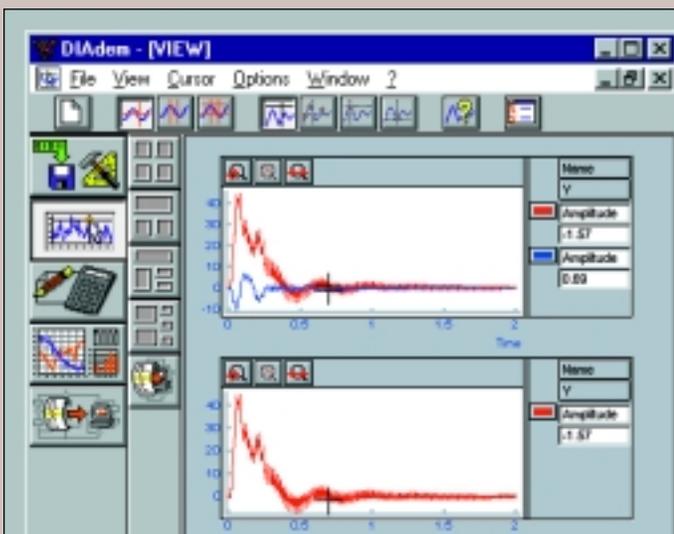
Drivers



A complete set of language drivers and documentation are included with Daq products for developing custom applications using programming languages like Visual Basic®, C++, and Delphi™ for Windows® 95/98/NT; C and Pascal for DOS; and LabVIEW®. The drivers are easy to use and provide both high- and low-level control of the hardware.

PC Data Acquisition Hardware

DIAdem®



Included with DaqView software, DIAdem-View is a powerful tool for reviewing and analyzing previously acquired data. Its interactive display, data management, and data reduction tools provide easy inspection of even the biggest files. Optional DIAdem modules can be added to provide post-acquisition viewing and analysis services for any data collection software, or can be operated seamlessly from within DaqView. See p. 198 for a full description.



DaqBoards™ Specifications

Specifications*

General

Power Consumption

/100A: 1.33A @ 5 VDC
/112A: 970 mA @ 5 VDC
/200A: 1.7A @ 5 VDC
/216A: 1.34A @ 5 VDC

Operating Temperature: 0° to 50°C

Storage Temperature: 0° to 70°C

Humidity: 0 to 95% RH, non-condensing

Dimensions

/100A, /112A, /200A, & /216A:
340 mm W x 117 mm H
(13.125" x 4.5")

A/D Specifications

Type: Successive approximation

Resolution

/100A, /112A: 12 bit
/200A, /216A: 16 bit

Conversion Time: 8 µs

Monotonicity: No missing codes

Linearity: ±1 bit

Zero Drift: ±10 ppm/°C max

Gain Drift: ±30 ppm/°C max

Sample & Hold Amplifier

Acquisition Time: 2 µs
Aperture Uncertainty: 100 ps

Analog Inputs

(/100A & /112A)

Channels: 16 single-ended, 8 differential, expandable up to 256 differential via optional expansion cards; single-ended/differential operation is software programmable

Connector: DB37 male, P1

Resolution: 12 bits

Accuracy: ±0.1% FS

Ranges

Unipolar/bipolar operation is sequencer selectable on a per-channel basis

/100A & /112A

Unipolar: 0 to +10V, 0 to +5V,
0 to +2.5V, 0 to +1.25V

Bipolar: ±5V, ±2.5V, ±1.25V, ±0.625V

Maximum Overvoltage: 30 VDC

Input Current

Differential: 150 pA typ
0.2 µA max

Single-Ended: 250 pA typ
0.4 µA max

Input Impedance: 100M Ohm in parallel with 100 pF

Gain Temp. Coefficient: 3 ppm/°C typ

Offset Temp. Coefficient: 12 µV/°C max

(/200A & /216A)

Channels: 16 single-ended, 8 differential, expandable up to 256 differential; single-ended/differential operation is software programmable

Connector: DB37 male, P1

Resolution: 16 bits

Accuracy: ±0.025% FS

Ranges

Unipolar/bipolar operation is sequencer selectable on a per-channel basis

Unipolar: 0 to +10V, 0 to +5V,
0 to +2.5V, 0 to +1.25V

Bipolar: ±5V, ±2.5V, ±1.25V, ±0.625V

Maximum Overvoltage: 30 VDC

Input Current

Differential: 150 pA typ
0.2 µA max

Single-Ended: 250 pA typ
0.4 µA max

Input Impedance: 100M Ohm in parallel with 100 pF

Gain Temp. Coefficient: 3 ppm/°C typ

Offset Temp. Coefficient: 12 µV/°C max

Triggering

Analog Trigger

Programmable Level Range: 0 to ±5V

Trigger to A/D Latency: 10 µs max

Digital Trigger

Logic Level Range: 0.8V low/2.2V high

Trigger to A/D Latency: 10 µs max

Software Trigger

Trigger to A/D Latency: Dependent on PC speed

Pre-Trigger: Up to 65,536 scans

Sequencer

Randomly programmable for channel and gain, as well as for unipolar/bipolar ranges

Depth: 512 location

Channel-to-Channel Rate: 10 µs/channel, fixed

Maximum Repeat Rate: 100 kHz

Minimum Repeat Rate: 12 hours

Expansion Channel Sample Rate: Same as on-board channels, 10 µs/channel

Analog Outputs

Channels: 2

Connector: DB37 male, mates with P1

Resolution: 12 bits

FIFO Depth: 4 Kword (2K per channel)

Voltage Ranges: 0 to 5 VDC with built-in reference;
0 to ±10 VDC with external reference

Maximum Output Current: 10 mA

Maximum Update Rate: 2 channels, 500 Ksamples/s;
1 channel, 1 Msamples/s

Memory: 2K words/channel on a per-channel basis

Maximum Analog Bandwidth: 500 kHz

General-Purpose Digital I/O

(/100A & /200A)

Number of Lines

/100A & /200A: 24 I/O lines, expandable up to 192

Connector:

/100A & /200A: DB37 male, P2 (on-board 40-pin DIN is externally accessible via DB37 with optional CA-60)

Device:

/100A & /200A: 82C55

Output Voltage Levels

Minimum "1" Voltage: 3.0 @ 2.5 mA sourcing

Maximum "0" Voltage: 0.4 @ 2.5 mA sinking

Output Current

Maximum Source Current: 2.5 mA

Maximum Sink Current: -2.5 mA

Input Voltage Levels

Minimum Required "1" Voltage Level: 2V

Maximum Allowed "0" Voltage Level: 0.8V

Output Float Leakage Current: 10 µA

High-Speed Digital Inputs

(/100A & /200A)

16 input lines

Connector: DB37 male, P3 (on-board 40-pin DIN is externally accessible via DB37 with optional CA-60)

Maximum Sampling Rate: 100 kHz

Input Low Voltage: 0.8V max

Input High Voltage: 2V min

Input Low Current: 10 nA

Input High Current: -10 µA

Counter/Timer

(/100A & /200A)

5 counter/timer channels

Connector: DB37 male, P3 (on-board 40-pin DIN is externally accessible via DB37 with optional CA-60)

Frequency/Pulse Counting Mode:

Up or down, binary or BCD

Maximum Pulse Count: 80-bit binary
(5 channels cascaded)

Maximum Input Rate: 7 MHz

Minimum High Pulse Width: 70 ns

Minimum Low Pulse Width: 70 ns

On-board Time Base: 1 MHz

Input Low Voltage: 0.8V max

Input High Voltage: 2.0V min

Input Low Current: -0.1 mA

Input High Current: 20 µA max

Frequency/Pulse Generating Mode

Maximum Output Frequency: 1 MHz

Duty Cycle: Variable between limits of approximately 0.0015% and 99.99%

Output High Voltage: 2.4V min @ 15 mA

Output Low Voltage: 0.5V max @ 24 mA

* For specifications on the PCI-based DaqBoard/2000, see p. 90



DaqBoards™

Ordering Information



The DBK40™ BNC interface attaches to the DaqBoard's P1 analog I/O connector for convenient connection of signals using BNC cables. The ribbon cable is an included CA-37-72.

Ordering Information

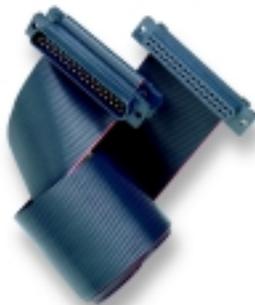
Description	Part No.
ISA-bus based data acquisition board for desktop PCs including LabVIEW®, DOS, and Windows® 3.x/95/98/NT w drivers; DaqView™ & DIAdem®-View applications	DaqBoard/100A DaqBoard/112A DaqBoard/200A DaqBoard/216A

Software	
Icon-based data acquisition, graphics, control, & analysis with DaqBoard driver	DASYLab

Cables	
Adapter cable for the DaqBoard/100A and /200A P2 or P3 port	CA-60
Ribbon cable with female DB37 connector on one end, unterminated on the other; provides convenient wiring to DaqBoard P1, P2, & P3 ports, 6 ft. (attachment to DaqBoard/100A & /200A P2 or P3 further requires use of an optional CA-60 cable)	CA-113
Expansion cable from ISA DaqBoard to DBK expansion products	CA-131-1T
Shielded expansion cable from DaqBoard to DBK41; 7 in.	CA-143-7
Shielded expansion cable from DaqBoard to DBK41; 18 in.	CA-143-18



CA-60, adapter cable with 37-pin male D-shell connector for the DaqBoard P2 or P3 ports



CA-131-1T, expansion cable with convenient "T" connector, for ISA DaqBoards, 36 in.

Related Products

Expansion Hardware	
DBK1	p. 117
DBK2	p. 118
DBK4	p. 119
DBK5	p. 121
DBK7	p. 123
DBK8	p. 125
DBK9	p. 126
DBK10	p. 127
DBK11A	p. 128
DBK12	p. 129
DBK13	p. 129
DBK15	p. 130
DBK16	p. 132
DBK17	p. 134
DBK18	p. 136
DBK19	p. 138
DBK20	p. 140
DBK21	p. 140
DBK23	p. 141
DBK24	p. 143
DBK25	p. 145
DBK32A	p. 147
DBK33	p. 147
DBK40	p. 149
DBK41	p. 150
DBK42	p. 152
DBK43A	p. 154
DBK44	p. 156
DBK45	p. 158
DBK50	p. 160
DBK51	p. 160
DBK52	p. 162
DBK53	p. 163
DBK54	p. 163
DBK60	p. 164
Software	
DaqView	p. 107
DaqViewXL	p. 111
DASYLab	p. 194
DIAdem	p. 198

QUICK FIND

For up-to-date information on products, and to order online, visit the IOtech Web site and enter the corresponding page number in the QUICK FIND field.



CA-143-7, & CA-143-18, shielded cable ribbon assembly, 37-pin female to 37-pin female

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