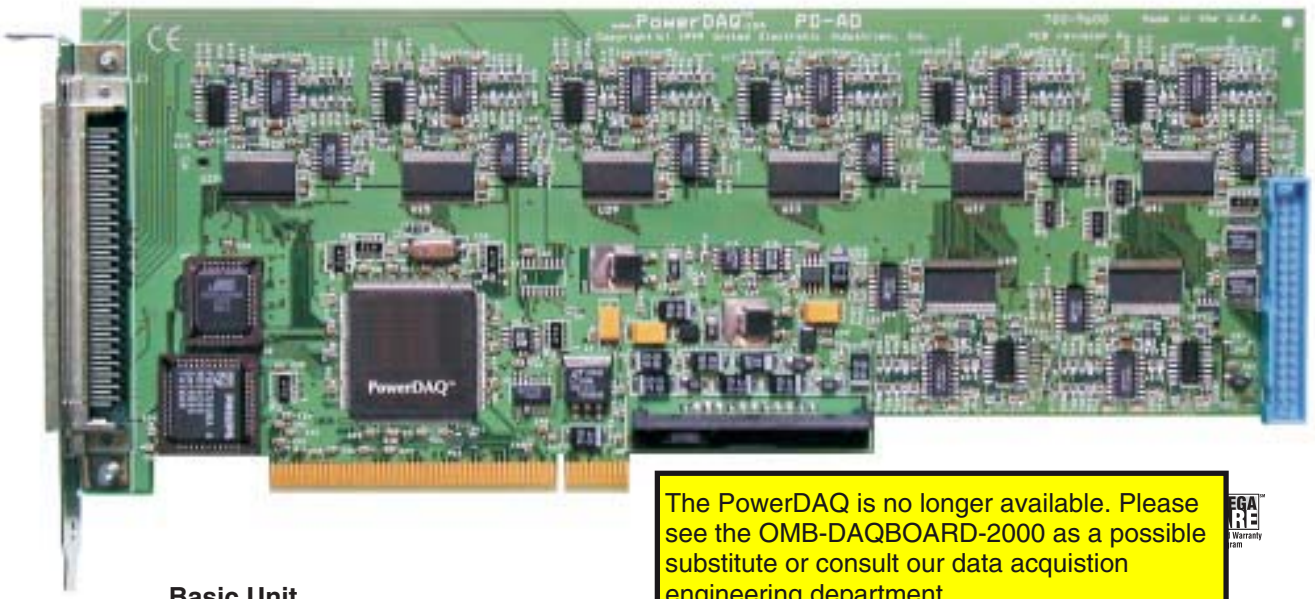
PowerDAQ II PCI A/D Boards

Processor Based Data Acquisition Boards for the PCI Bus



The PowerDAQ is no longer available. Please see the OMB-DAQBOARD-2000 as a possible substitute or consult our data acquistion engineering department.

Basic Unit

$895

- **16 Single Ended/ 8 Differential A/D Inputs or 64 Single Ended/ 32 Differential A/D Inputs**
- **1.25 MS/s 12-bit Resolution**
- **400 kS/s 14-bit Resolution**
- **333 kS/s, 50 kS/s 16-bit Resolution**
- **Programmable Gain 1, 10, 100, 1000 or 1, 2, 4, 8**
- **2, 12-bit, 200 kHz D/A's WaveForm Quality**
- **16 Digital Input (8 Can Generate Interrupts) 16 Digital Output**
- **3, 16-bit User-Dedicated Counter/Timers**
- **Simultaneous A/D, D/A, DIO, Counter/Timer Subsystems Operation**
- **Bus Mastering DMA Extensive Clocking and Triggering for A/D and D/A**
- **No Jumpers or Switches**
- **Auto Calibration**

PowerDAQ II is
multifunction ar
board for the P
PowerDAQ II boards have been developed with new "clean" 32-bit drivers for Windows95 and Windows NT, hence no legacy code.

The PowerDAQ II series is designed around a "processor based" 24-bit 66 MHz Motorola 56301 PCI DSP interface. This design allows the user to offload the host CPU data acquisition functions to the onboard DSP thus giving the user the power of two CPUs in one PC.

Each PowerDAQ II multifunction board is comprised of four subsystems, Analog Input, Analog Output, Digital I/O and Counter/Timers. PowerDAQ technology allows all the subsystems to run simultaneously and/or independently with one or multiple boards in the same PC. You can start and stop multiple subsystems as required. The PowerDAQ II based boards all feature extensive hardware and software triggering. Data transfer methods include slave mode and bus mastering operation.

Several different models of the PowerDAQ II boards are available. The models differ in resolution, speed, input range and number of channels.

s a
comprehensive software suite provided at no additional charge. The suite consists of a menu driven quick start application for quick and easy operation without programming, a software development kit (SDK) for custom user program creation under Windows 9x/NT/2000 and software drivers for a large variety of off-the-shelf applications. The quick start application provides data collection, graphical display of the data, and datalogging in a format compatible with most spreadsheets and other post acquisition software packages.

The PowerDAQ SDK supports Visual C++, Visual Basic, Delphi and Borland C++ Builder

PowerDAQ II boards are also compatible with a variety of off-the-shelf data acquisition application programs. The drivers for the following packages are provided at no charge.

Third Party Drivers for:

LabVIEW for Windows
HP VEE
TestPoint
DASYlab
DIAdem

To Order *(Specify Model Number)*

Model Number	Price	Speed	Channels (SE/Diff)	Gains	A/D Resolution
PD2-MF-16-150/16L	**$895**	150 kS/s	16/8	1,10,100,1000	16 bits
PD2-MF-16-150/16H	**895**	150 kS/s	16/8	1,2,4,8	16 bits
PD2-MF-16-400/14L	**895**	400 kS/s	16/8	1,10,100,1000	14 bits
PD2-MF-16-400/14H	**895**	400 kS/s	16/8	1,2,4,8	14 bits
PD2-MF-64-400/14L	**1395**	400 kS/s	64/32	1,10,100,1000	14 bits
PD2-MF-64-400/14H	**1395**	400 kS/s	64/32	1,2,4,8	14 bits
PD2-MF-16-1M/12L	**1650**	1.25 MS/s	16/8	1,10,100,1000	12 bits
PD2-MF-16-1M/12H	**1650**	1.25 MS/s	16/8	1,2,4,8	12 bits
PD2-MF-64-1M/12L	**2495**	1.25 MS/s	64/32	1,10,100,1000	12 bits
PD2-MF-64-1M/12H	**2495**	1.25 MS/s	64/32	1,2,4,8	12 bits
PD2-MF-16-333/16L	**1650**	333 kS/s	16/8	1,10,100,1000	16 bits
PD2-MF-16-333/16H	**1650**	333 kS/s	16/8	1,2,4,8	16 bits
PD2-MF-64-333/16L	**2395**	333 kS/s	64/32	1,10,100,1000	16 bits
PD2-MF-64-333/16H	**2395**	333 kS/s	64/32	1,2,4,8	16 bits

All PowerDAQ II boards include a complete user's manual, Quick Start application and driver software.
Ordering Example: PD2-MF-16-150/16L** PowerDAQ II board, **PD-STP-9616-KIT** accessory kit and **OMEGACARE**℠ 1 year extended warranty for PowerDAQ II board (adds 1 year to standard 1 year warranty), $895 + 275 + 89 = **$1259.

Accessory Racks
The PowerDAQ II boards can connect to a variety of stand-alone or 19" rack-mount accessory panels. A complete range of cables and options are available.

Isolated Thermocouple Input Rack
The PD-TCR-16-x is a 16 channel isolated thermocouple rack which can be connected to any PowerDAQ II board. The thermocouple rack supports measurement from J or K thermocouples.

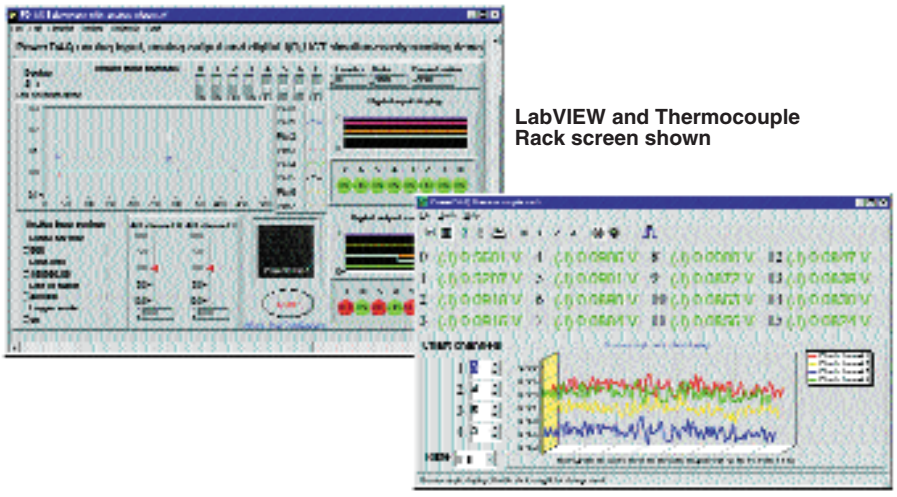
For 16 channels of measurement, the PowerDAQ II boards may be connected directly to the PD-TCR-16-x via a PD-CBL-96 (96-way pinless 1 m cable). For more than 16 channels, the PD-5BCONN interface panel should be used(see diagram).

Features of the PD-TCR-16
- Support Type J (Iron-Constantan) or Type K (CHROMEGA®-ALOMEGA®) direct input connection
- CJC on each channel
- Laser wafer trimmed to 1°C calibration accuracy
- Individual channel isolation to 1000 V
- Type J input: 0 to 600°C
- Type K input: 0 to 1000°C
- Up to 64 Non multiplexed inputs per system

Signal Conditioning Connection Panels
The PD-5BCONN and PD-7BCONN signal conditioning interface panels provide easy connection to up to four signal conditioning racks. The PD-5BCONN connects to OMEGA's OM5 signal conditioning racks and the PD-TCR-16-x isolated thermocouple input rack. The PD-7BCONN connects to OMEGA's OM7 signal conditioning racks.

Screw Terminal Panels
Two screw terminal boards are available, the PD-STP-9616 connects to 16 channel PowerDAQ II boards and the PD-STP-96 connects to boards with 64 channels. Use the PD-CBL-96 one meter cable to connect from the PowerDAQ II J1 analog connector to the PD-STP J1 connector. Use the PD-CBL-37 ribbon cable set to PD-STP J2 connector.

BNC Analog Connection Panel
The PD-BNC-16 offers all analog input connections using BNC type connectors for the 16 channel boards. The PD-BNC-16 supports single ended or differential input (via jumper selection). Silk screened component open locations for building RC filters and voltage dividers are also supplied. The PD-BNC-16 panel connects to the 16 channel PowerDAQ II boards using the PD-CBL-96 cable. The PD-BNC can be rack mounted using the PD-19RACK option.



LabVIEW and Thermocouple Rack screen shown

Specifications

ANALOG INPUT

Number of Channels: 16 or 64 single-ended, 8 or 32 differential

Resolution:
PD2-MF-xx-400/14x: 14 bits
PD2-MF-xx-1M/12x: 12 bits
PD2-MF-xx-150/16x: 16 bits
PD2-MF-xx-333/16x: 16 bits

Max Sample Rate:
PD2-MF-xx-400/14x: 400 kS/s
PD2-MF-xx-1M/12x: 1.25 MS/s
PD2-MF-xx-150/16x: 150 kS/s
PD2-MF-xx-333/16x: 333 kS/s

Onboard FIFO: 1K FIFO, upgradeable to 16K or 32K

Input Ranges: 0-10 V, ±10 V, 0-5 V, ±5 V (software selectable)

Programmable Gains:
L Versions = 1, 10, 100, 1000;
H Versions = 1, 2, 4, 8
(software selectable)

Max Working Voltage (signal plus common mode):
All Models: -10 V to 10 V

Input Overvoltage: -35 V to +55V continuous, powered or unpowered

Nonlinearity:
PD2-MF-xx-400/14x: ±0.5 LSB
PD2-MF-xx-1M/12x: ±0.5 LSB
PD2-MF-xx-150/16x: ±1 LSB
PD2-MF-xx-333/16x: ±1 LSB

System Noise:
PD2-MF-xx-400/14x: ±0.2 LSB
PD2-MF-xx-1M/12x: ±0.8 LSB
PD2-MF-xx-150/16x: ±1.2 LSB
PD2-MF-xx-333/16x: ±1.3 LSB

Input Impedance: 10 MΩ in parallel with 22 pF

Input Bias Current: ±20 nA typical

Input Offset Current: ±100 pA typical

Triggering Modes: Normal, Post, Pre and About Trigger

ANALOG OUTPUT

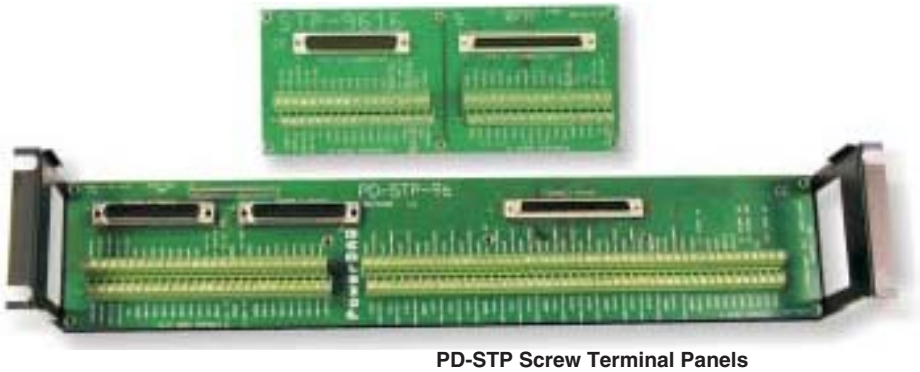
Number of Channels: 2
Resolution: 12 bit
Max Update Rate: 200 kS/s
Range: ±10V fixed
Data Transfer: DMA

DIGITAL I/O

Input/Output Bits: 16
Input High: $V_{IH} \approx 2.0V$

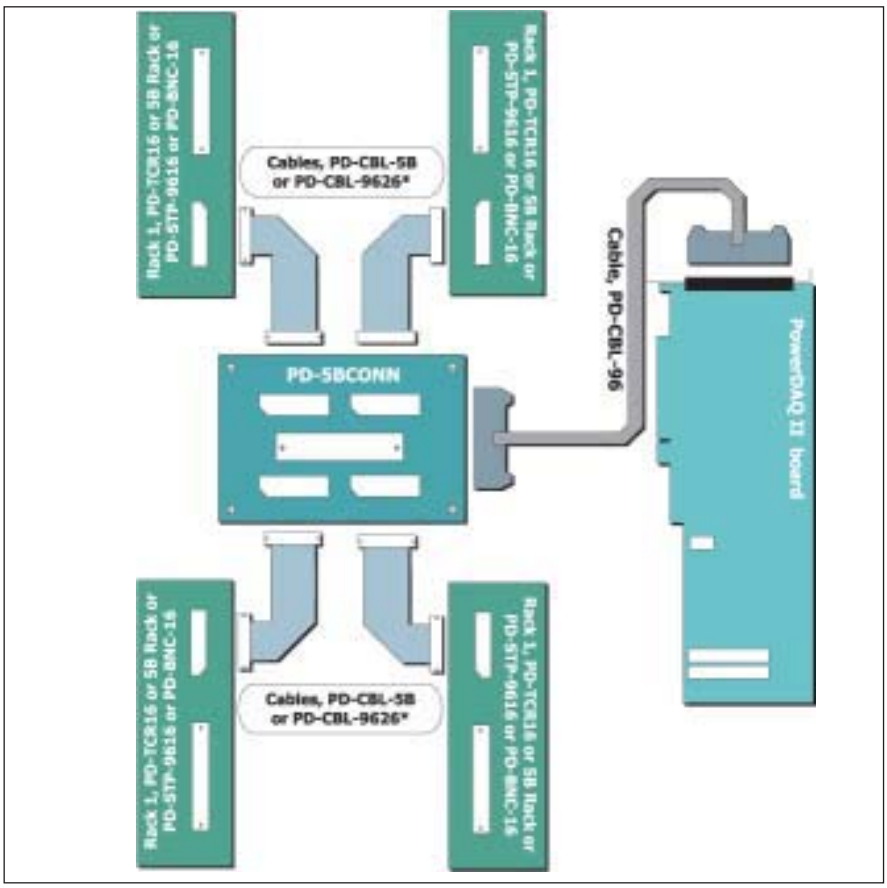
PD-7BCONN Interface Panel

PD-5BCONN Interface Panel



PD-STP Screw Terminal Panels

Connecting to Four OM5 Backplanes or Four PD-TCR16 Thermocouple Racks



Input Low: $V_{IL} \approx 0.8V$
Input Current: $I_{IH} \approx 20$ mA, $I_{IL} \approx -20$ mA

Output High: $V_{OH} \approx 3.0V$

Output Low: $V_{OL} \approx 0.5V$

COUNTER/TIMER

Number of Counters: 3 available to user

Resolution: 16 bits
Input Low: V_{IL} =0.8V max;
I_{IL} = -20 µA max
Input High: V_{IH} =2.0V max;
I_{IH} = 20 µA max

GENERAL
Connector 1: 96-way high-density "pinless" connector

Connector 2:
36-pin header connector (male)
Connector 4:
36-pin header connector (male)
Connector 6:
8-pin header connector (male)
Operating Environment:
0 to 70°C

Power Requirements:
5W typical
Dimensions:
10.5 x 3.8" (262 x 98 mm)

The PowerDAQ is no longer available. Please see the OMB-DAQBOARD-2000 as a possible substitute or consult our data acquistion engineering department.

Accessories

Model Number	Price	Description
PD-TCR16-J	**$995**	16 Channel Isolated Thermocouple Input Rack Type J
PD-TCR16-K	**995**	16 Channel Isolated Thermocouple Input Rack Type K
PD-STP-96	**225**	Screw terminal panel with 96-pin and 37 pin connector for 64 channel boards
PD-STP-96-KIT	**349**	Complete Kit: Includes PD-STP-96, PD-CBL-96 and PD-CBL-37 for 64 channel boards
PD-STP-9616	**155**	Screw Terminal Panel with 96-pin and 37-pin connector for 16 channel boards
PD-STP-9616-KIT	**275**	Complete Kit: Includes PD-STP-9616, PD-CBL-96 and PD-CBL-37 for 16 channel boards
PD-BNC-16	**350**	16 Channel BNC panel
PD-BNC-16-KIT	**419**	Complete Kit: Includes PD-BNC-16, PD-CBL-96, PD-CBL-37
PD-BNC-64	**550**	64 Channel BNC panel
PD-BNC-64-KIT	**619**	Complete Kit: Includes PD-BNC-64, PD-CBL-96,PD-CBL-37
PD-5BCONN	**95**	Connects 16 or 64 channel PowerDAQ II board to 1 to 4, 5B-xx racks (Cables required: PD-CBL-96 and one to four PD-CBL-5B)
PD-7BCONN	**95**	Connects 16 or 64 channel PowerDAQ II board to 1 to 4, 7B-xx racks (Cables required: PD-CBL-96 and one to four PD-CBL-7B)
PD-100HDR	**95**	Connects 16 or 64 channel PowerDAQ II board to two 50way IDC headers
PD-CBL-96	**99**	96-way pinless; 1 m length, round, shielded cable with metal cover plates
PD-CBL-96-6FT	**210**	96-way pinless; 6 ft, round, shielded cable with metal cover plates
PD-CBL-96-9FT	**250**	96-way pinless; 9 ft, round, shielded cable with metal cover plates
PD-CBL-37	**55**	DIO Cable set: 37-way D-sub cable, Internal cable w/mounting bracket; 1 m length
PD-CBL-37-BRKT	**40**	DIO Cable: Internal cable w/mounting bracket; 1 m length
PD-CBL-37-TP	**85**	DIO Twisted Pair Cable set: 37-way D-sub cable, Internal cable w/mounting bracket; 1 m length
PD-CBL-5B	**25**	18" ribbon cables that connect from the PD-5BCONN to 5B-xx racks
PD-CBL-7B	**35**	18" ribbon cables that connect from the PD-7BCONN to 7B-xx racks
PD-CBL-9626	**149**	18" round shielded cable that connects from the PD-5BCONN to PD-STP-16 or PD-BNC-16
PD-CBL-SYNC4	**75**	Internal cable to synchronize up to 4 PowerDAQ II series boards
PD-CONN	**40**	PowerDAQ mating connector with metal cover (Includes Fujitsu connector: FCN-230C096-C/E and metal cover: FCN-247J096-G/E)
PD-CONN-CBL	**75**	96-way pin-less; 0.5 m length, round, shielded cable with metal cover plate
PD-CONN-PCB	**75**	PowerDAQ mating connector with PCB attached
PD-19RACK	**55**	19" rack
PD-19RACKW	**150**	19" rack (wide version for PD-TCR-16X or PD-BNC-64)
PD-16KFIFO	**300**	Upgrade 1K FIFO to 16K FIFO
PD-32KFIFO	**500**	Upgrade 1K FIFO to 32K FIFO
PD-PSU-5/15	**225**	Power Supply 110V/220V AC Input, +5V DC, +/-15V DC Output for use with PD-TCR

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