OME-PCI-1800H/L and OME-PCI-1802H/L Series

- PCI Bus
- 12-Bit 330 KHz A/D Converter
- OME-PCI-1802H, OME-PCI-1802L: 32 Single-Ended/16 Differential Inputs, 8K Word FIFO
- 330 KSamples/s for Single Channel or Multiple Channels
- Trigger Methods: Software Trigger, Pacer Trigger, External Trigger
- External Triggers: Post-Trigger, Pre-Trigger, External Pacer Trigger
- OME-PCI-1800L, OME-PCI-1802L Programmable Low-Gain: 0.5, 1, 2, 4, 8
- 16 Digital Input and 16 Digital Output Channels
- OME-PCI-1800H, OME-PCI-1802H Programmable High-Gain: 0.5, 1, 5, 10, 50, 100, 500, 1000
- Two Optional 12-Bit Independent Programmable DACs; 2 MHz Throughput per Channel (Max)
- 2.7M Word/High-Speed Data Transfer Rate
- Includes Software Development Kit
- Half-Size Board

The OME-PCI-1800 Series is a family of high-performance data acquisition boards for the PCI bus. It features continuous, 330 kHz, gap-free data acquisition under DOS and Windows.

The OME-PCI-1800 family has two 12-bit D/A output channels, 16 digital input channels, and 16 digital output channels.

The OME-PCI-1800H and OME-PCI-1800L provide 16 single-ended or 8 differential inputs. The OME-PCI-1802H and OME-PCI-1802L provide 32 single-ended or 16 differential inputs. The suffix “H” denotes a high-gain model and the “L” denotes a low-gain model. The boards feature advanced scanning features. The scanning mechanism not only scans the different input channels at vastly different rates, but also at different gains. Even in multichannel scan mode, the sampling rates can be maintained at 330 KS/s.

The OME-PCI-1800 Series also has some outstanding features, including:
- Data transfer rate of digital I/O is up to 5.4 MB
- Throughput of D/A is up to 2 MHz (maximum)
- Three flexible external trigger modes such as post-trigger, pre-trigger, middle trigger
- True “plug & play” under DOS and Windows
- On-board FIFO

OME-DB-889D 16-Channel Analog Multiplexer Board
The OME DB-889D is an expansion multiplexer/amplifier board for use with OME-PCI-1800H/L boards. Each OME-DB-889D multiplexes 16 differential analog input channels into one analog input of the data acquisition board. The high-grade instrumentation amplifier provides software programmable gains of 0.5, 1, 5, 10, 50, 100, 500, and 1000. Thermocouple measurements are handled easily with the OME-DB-889D. The board includes cold-junction sensing and compensation circuitry that provides a scaling of 24.4 mV/°C. Biasing resistors are included for open thermocouple detection. The OME-DB-889D can be cascaded to a total of 128 channels of voltage measurements or 112 channels of thermocouple measurement.

OME-DB-16P 16-Channel Isolated Digital Input Board
The OME-DB-16P is a 16-channel isolated digital input daughter board for any of the OME-PCI-1802H/1802L/1800H/1800L/1602/1602F/1202H/1202L/1002H/1002L PCI-bus multifunction boards.
The optically isolated inputs of the OME-DB-16P consist of a bi-directional OPTO-coupler with a resistor for current sensing. The OME-DB-16P can be used to sense DC signals from TTL levels up to 24 V and also a wide range of AC signals. The OME-DB-16P can also be used to isolate the computer from large common-mode voltages, ground loops and voltage spikes that often occur in industrial environments.

**OME-DB-16R 16-Channel Relay Output Board**

The OME-DB-16R 16-channel relay output board consists of 16 Form C relays for efficient switching of loads by programmed control.

The OME-DB-16R can be used with any of the OME-PCI-1802H/1802L/1800H/1800L/1602/1602F/1202H/1202L/1002H/1002L PCI-bus multifunction boards. The relays are energized by applying a 5 V signal to the appropriate relay channel on the 20-pin flat cable connector. Sixteen annunciator LEDs, one for each relay, light when their associated relay is activated. To avoid overloading the PC’s power supply, this board provides a screw terminal connection for a power supply.

**Software Development Kit**

All data acquisition boards are supplied with a standard software development kit for Windows 98/NT/2000/XP. The software development kit includes DLL files for programming in C, C++, or other high-level languages, and OCX files for Visual Basic or Active X programming. LabVIEW drivers are also included.

**Specifications**

**ANALOG INPUT SPECIFICATIONS**

**Input Channels:**
OME-PCI-1802H/L, 32 SE/16 Diff
OME-PCI-1800H/L, 16 SE/8 Diff

**Resolution:** 12 bits

**Conversion Rate:** 330 KS/s

**Input Impedance:** 10,000 MΩ/6 pf

**Overvoltage Protection:** ±35 V

**Accuracy:** 0.01% of reading, ±1 bit

**On Board FIFO:**
OME-PCI-1800 H/L: 2K
OME-PCI-1802 H/L: 8K

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<table>
<thead>
<tr>
<th>gains</th>
<th>Bipolar (V)</th>
<th>Unipolar (V)</th>
<th>Throughput</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>±10 V</td>
<td>0 to 10 V</td>
<td>400 KS/s</td>
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<tr>
<td>1</td>
<td>±5 V</td>
<td>0 to 10 V</td>
<td>40 KS/s</td>
</tr>
<tr>
<td>2</td>
<td>±2.5 V</td>
<td>0 to 5 V</td>
<td>40 KS/s</td>
</tr>
<tr>
<td>4</td>
<td>±1.25 V</td>
<td>0 to 2.5 V</td>
<td>40 KS/s</td>
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<tr>
<td>8</td>
<td>±0.625 V</td>
<td>0 to 1.25 V</td>
<td>40 KS/s</td>
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</table>

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<tr>
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<td>±5 V</td>
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<td>10 KS/s</td>
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<tr>
<td>2</td>
<td>±1 V</td>
<td>0 to 2.5 V</td>
<td>10 KS/s</td>
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<tr>
<td>5</td>
<td>±0.5 V</td>
<td>0 to 1 V</td>
<td>10 KS/s</td>
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<tr>
<td>10</td>
<td>±0.1 V</td>
<td>0 to 0.01 V</td>
<td>10 KS/s</td>
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<tr>
<td>100</td>
<td>±0.05 V</td>
<td>0 to 0.1 V</td>
<td>10 KS/s</td>
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<tr>
<td>500</td>
<td>±0.01 V</td>
<td>0 to 0.01 V</td>
<td>10 KS/s</td>
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<tr>
<td>1000</td>
<td>±0.005 V</td>
<td>0 to 0.01 V</td>
<td>10 KS/s</td>
</tr>
</tbody>
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OME-DB-16P shown smaller than actual size.
Each OME-PCI-1800 Series data acquisition board includes complete operator's manual on CD ROM and software development kit.

Ordering Example: OME-PCI-1802H 32-channel high-gain data acquisition board, OME-DB-8225/1 screw terminal board and cable and OME-PCI-1800H shown smaller than actual size

<table>
<thead>
<tr>
<th>To Order</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OME-PCI-1800H</td>
<td>16-channel, high-gain, 12-bit analog and digital I/O board (2K word FIFO)</td>
</tr>
<tr>
<td>OME-PCI-1800L</td>
<td>16-channel, low-gain, 12-bit analog and digital I/O board (2K word FIFO)</td>
</tr>
<tr>
<td>OME-PCI-1802H</td>
<td>32-channel, 330 KS/s, high-gain, 12-bit analog and digital I/O board (8K word FIFO)</td>
</tr>
<tr>
<td>OME-PCI-1802L</td>
<td>32-channel, 330 KS/s, low-gain, 12-bit analog and digital I/O board (8K word FIFO)</td>
</tr>
<tr>
<td>OME-DB-1825/1</td>
<td>Screw terminal board for analog input channels for OM-PCI-1802H/L, with 1 meter cable</td>
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<tr>
<td>OME-DB-1825/2</td>
<td>Screw terminal board for analog input channels for OM-PCI-1802H/L, with 2 meter cable</td>
</tr>
<tr>
<td>OME-DB-8225/1</td>
<td>Screw terminal board for analog input channels for OM-PCI-1800H/L, with 1 meter cable</td>
</tr>
<tr>
<td>OME-DB-8225/2</td>
<td>Screw terminal board for analog input channels for OM-PCI-1800H/L, with 2 meter cable</td>
</tr>
<tr>
<td>OME-DB-8025</td>
<td>Screw terminal board for digital I/O, includes two 1 m cables</td>
</tr>
<tr>
<td>OME-DB-889D</td>
<td>16-channel analog multiplexer board, includes 1 m cable</td>
</tr>
<tr>
<td>OME-DB-16P</td>
<td>16-channel isolated digital input board, includes 1 m cable</td>
</tr>
<tr>
<td>OME-DB-16R</td>
<td>16-channel SPDT relay board, includes 1 m cable</td>
</tr>
<tr>
<td>OME-ADP-20/PCI</td>
<td>20-pin extender (extends the dual 20-pin digital I/O flat cable connectors on the board to the PC slot window, includes two 20-pin cables)</td>
</tr>
</tbody>
</table>

Extended Warranty Program

OMEGACARE extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE covers parts, labor and equivalent loaners.

DATA ACQUISITION PLUG-IN CARDS

D/A OUTPUTS
Channels: 2
Type: 12-bit double buffers
Linearity: 0.06% FS
Settling Time: 0.4 ms
Output Range: ±5 or ±10 V
Output Driving: ±5 mA

DIGITAL I/O
Input: 16 channels; TTL levels
Input Low:
\[ V_1 = 0.8 \text{ V maximum} \]
\[ I_1 = 4 \text{ mA} \]
Input High:
\[ V_2 = 2 \text{ V minimum} \]
\[ I_{2} = -20 \mu\text{A maximum} \]
Output: 16 channels; TTL levels
Output Low:
\[ V_3 = 0.5 \text{ V maximum} \]
\[ I_3 = 4 \text{ mA maximum} \]
Output High:
\[ V_4 = 2.7 \text{ V minimum} \]
\[ I_{4} = -400 \mu\text{A maximum} \]

TIMER
Internal Pacer Timer:
16-bit, 8 MHz input
External Pacer Timer:
16-bit, 8 MHz input
Machine Independent
Timer: 16-bit, 8 MHz input

GEnERAL EnvIROnMEnTAL
Power Requirements:
5 V @ 350 mA (max)
Operating Temperature:
0 to 50°C (32 to 122°F)
Storage Temperature:
-20 to 70°C (-4 to 158°F)
Humidity: 0 to 90% RH non-condensing
Dimensions: 190 L x 105 mm H (7.5 x 4.1")