# PXI/DAQ/DAQe-2000 Series

## 4-CH 14/16-Bit Up to 2 MS/s Simultaneous-Sampling DAQ Cards

PXI-2010

DAQ-2010

DAQe-2010

## Ordering Information / Quick Selection Guide

| Model Name | Analog Input | | | | Analog Output | | | DIO | Timer/Counter |
|---|---|---|---|---|---|---|---|---|---|
| | No. of channels | Resolution | Sampling rate | Input range | No. of channels | Resolution | Update rate | No. of channels | No. of channels |
| PXI/DAQ/DAQe-2010 | 4-CH DI | 14 Bit | 2 MS/s | ±1.25 V to ±10 V | 2 | 12 Bit | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-Bit |
| PXI/DAQ/DAQe-2005 | 4-CH DI | 16 Bit | 500 kS/s | ±1.25 V to ±10 V | 2 | 12 Bit | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-Bit |
| PXI/DAQ/DAQe-2006 | 4-CH DI | 16 Bit | 250 kS/s | ±1.25 V to ±10 V | 2 | 12 Bit | 1 MS/s | 24-CH 8255 PIO | 2-CH, 16-Bit |

## Specifications

| Model Name | PXI/DAQ/DAQe-2010 | PXI/DAQ/DAQe-2005 | PXI/DAQ/DAQe-2006 |
|---|---|---|---|
| **Analog Input** | | | |
| Resolution | 14 Bit | 16 Bit, no missing codes | 16 Bit, no missing codes |
| Number of channels | 4 simultaneous-sampling channels with differential input | | |
| Maximum sampling rate | 2 MS/s | 500 kS/s | 250 kS/s |
| Programmable gain | 1, 2, 4, 8 | | |
| Bipolar input ranges | ±10 V, ±5 V, ±2.5 V, ±1.25 V | | |
| Unipolar input ranges | 0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V | | |
| Offset error | ±3 mV | 2 mV | ±1 mV |
| Gain error | ±0.1% of FSR | ±0.04% of FSR | ±0.03% of FSR |
| Input Coupling | DC | | |
| Overvoltage protection | Power on: Continuous ±35 V, Power off: Continuous ±15 V | | |
| Input Impedance | 1 GΩ/100 pF | | |
| Trigger sources | Software, external digital/analog trigger, SSI bus | | |
| Trigger modes | Pre-trigger, post-trigger, middle-trigger, delay-trigger, and repeated trigger | | |
| FIFO buffer size | 8 k samples | 512 samples | 512 samples |
| Data transfers | Polling, scatter-gather DMA | | |
| **Analog Output** | | | |
| Number of channels | 2 voltage outputs | | |
| Resolution | 12 Bit | | |
| Output ranges | 0-10 V, ±10 V, 0-AOEXTREF, ±AOEXTREF | | |
| Maximum update rate | 1 μs | | |
| Slew rate | 20 V/μs | | |
| Settling time | 3 μs to ±0.5 LSB accuracy | | |
| Offset error | ±3mV | ±1mV | ±1mV |
| Gain error | ±0.05% of max. output | ±0.04% of max. output | ±0.04% of max. output |
| Driving capacity | 5 mA | | |
| Stabililty | Any passive load, up to 1500 pF | | |
| Trigger sources | Software, external digital/analog trigger, SSI bus | | |
| Trigger modes | Post-trigger, delay-trigger, and repeated trigger | | |
| FIFO buffer size | 2 k samples | | |
| Data transfers | Programmed I/O, scatter-gather DMA | | |
| **Digital I/O** | | | |
| Number of channels | 8255 24-Bit programmable input/output | | |
| Compatibility | 5 V/TTL | | |
| Data transfers | Programmed I/O | | |
| **Timer/Counter** | | | |
| Number of channels | 2 | | |
| Resolution | 16 Bit | | |
| Compatibility | 5 V/TTL | | |
| Base clock available | 40 MHz , external clock up to 10 MHz | | |
| **General Specifications** | | | |
| Auto Calibration | Yes (+5 V, ±2 ppm/˚C) | | |
| Dimensions | 160 mm x 100 mm (not including connectors) (PXI-2000 series)<br>175 mm x 107 mm (not including connectors) (DAQ-2000 series)<br>168 mm x 107 mm (not including connectors) (DAQe-2000 series) | | |
| Connector | 68-pin VHDCI-type female | | |
| Operating temperature | 0˚C to 55˚C (32˚F to 131˚F ) | | |
| Storage temperature | -20˚C to 70˚C (-4˚F to 158˚F) | | |
| Humidity | 5 to 95%, non-condensing | | |
| Power requirements | +5 V 1.82 A typical (PXI/DAQ-2010)<br>+3.3 V 1.246 A, +12 V 0.448 A typical (DAQe-2010) | +5 V 2.04 A typical (PXI/DAQ-2005)<br>+3.3 V 1.03 A, +12 V 0.75 A typical (DAQe-2005) | +5 V 1.82 A typical (DAQ-2006)<br>+3.3 V 1.02 A, +12 V 0.67 A typical (DAQe-2006) |

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## Features

- Supports a 32-Bit 3.3 V or 5 V PCI bus (DAQ-2000 series)
- x1 lane PCI Express® Interface (DAQe-2000 series)
- PXI specification Rev. 2.2 compliant (PXI-2000 series)
- 4-CH differential analog inputs
- Bipolar or unipolar analog input ranges
- Programmable gains of x1, x2, x4, x8
- Scatter-gather DMA for both analog inputs and outputs
- 2-CH 12-Bit multiplying analog outputs with waveform generation
- 24-CH TTL digital input/output
- 2-CH 16-Bit general-purpose timer/counter
- Analog and digital triggering
- Fully auto calibration
- Multiple cards synchronization through SSI (System Synchronization Interface) bus or PXI trigger bus

**Supported Operating System**

- Windows 7/8 x64/x86, Linux

**Driver and SDK**

- LabVIEW, MATLAB, C/C++, Visual Basic, Visual Studio.NET

**Software Utility**

- AD-Logger

## Terminal Boards & Cables

- DIN-68S-01
- ACL-10568-1
- ACL-SSI-2/3/4

* For more information on mating terminal board and cables, please refer to P3-48/49.

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