

# 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	$\pm 1.25 \text{ V to } \pm 10 \text{ V}$	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	$\pm 1.25 \text{ V to } \pm 10 \text{ V}$	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	$\pm 1.25 \text{ V to } \pm 10 \text{ V}$	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
<b>Analog Input</b>			
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	$\pm 10 \text{ V}$ , $\pm 5 \text{ V}$ , $\pm 2.5 \text{ V}$ , $\pm 1.25 \text{ V}$		
Unipolar input ranges	0-10 V, 0-5 V, 0-2.5 V, 0-1.25 V		
Offset error	$\pm 3 \text{ mV}$	2 mV	$\pm 1 \text{ mV}$
Gain error	$\pm 0.1\%$ of FSR	$\pm 0.04\%$ of FSR	$\pm 0.03\%$ of FSR
Input Coupling	DC		
Overvoltage protection	Power on: Continuous $\pm 35 \text{ V}$ , Power off: Continuous $\pm 15 \text{ V}$		
Input Impedance	1 G $\Omega$ /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		
<b>Analog Output</b>			
Number of channels	2 voltage outputs		
Resolution	12 Bit		
Output ranges	0-10 V, $\pm 10 \text{ V}$ , 0-AOEXTREF, $\pm$ AOEXTREF		
Maximum update rate	1 $\mu$ s		
Slew rate	20 V/ $\mu$ s		
Settling time	3 $\mu$ s to $\pm 0.5$ LSB accuracy		
Offset error	$\pm 3 \text{ mV}$	$\pm 1 \text{ mV}$	$\pm 1 \text{ mV}$
Gain error	$\pm 0.05\%$ of max. output	$\pm 0.04\%$ of max. output	$\pm 0.04\%$ of max. output
Driving capacity	5 mA		
Stability	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		
<b>Digital I/O</b>			
Number of channels	8255 24-Bit programmable input/output		
Compatibility	5 V/TTL		
Data transfers	Programmed I/O		
<b>Timer/Counter</b>			
Number of channels	2		
Resolution	16 Bit		
Compatibility	5 V/TTL		
Base clock available	40 MHz, external clock up to 10 MHz		
<b>General Specifications</b>			
Auto Calibration	Yes (+5 V, $\pm 2$ ppm/ $^{\circ}$ C)		
Dimensions	160 mm x 100 mm (not including connectors) (PXI-2000 series) 175 mm x 107 mm (not including connectors) (DAQ-2000 series) 168 mm x 107 mm (not including connectors) (DAQe-2000 series)		
Connector	68-pin VHDCI-type female		
Operating temperature	0 $^{\circ}$ C to 55 $^{\circ}$ C (32 $^{\circ}$ F to 131 $^{\circ}$ F)		
Storage temperature	-20 $^{\circ}$ C to 70 $^{\circ}$ C (-4 $^{\circ}$ F to 158 $^{\circ}$ F)		
Humidity	5 to 95%, non-condensing		
Power requirements	+5 V 1.82 A typical (PXI/DAQ-2010) +3.3 V 1.246 A, +12 V 0.448 A typical (DAQe-2010)	+5 V 2.04 A typical (PXI/DAQ-2005) +3.3 V 1.03 A, +12 V 0.75 A typical (DAQe-2005)	+5 V 1.82 A typical (DAQ-2006) +3.3 V 1.02 A, +12 V 0.67 A typical (DAQe-2006)

## 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-685-01
- ACL-10568-1
- ACL-SSI-2/3/4

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