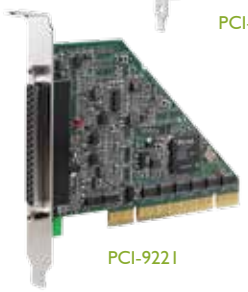
PCI-9221/9222/9223

16/32-CH 16-Bit 250/500 kS/s Multi-Function DAQ Cards with Encoder Input



PCI-9222/9223



PCI-9221

Features

- **Supports a 32-Bit 3.3 V or 5 V PCI bus**
- **Programmable gains for analog input: 1, 2, 4, 5, 8, 10, 20, 40 (PCI-9222/9223) 1, 5, 10, 25 (PCI-9221)**
- **2-CH 16-Bit simultaneous analog outputs, up to 1 MS/s analog output update rate (PCI-9222/9223)**
- **Programmable function I/O, supporting modes:**
  - **TTL DI and TTL DO**
  - **2 MHz High-Speed DIO (PCI-9222/9223 only)**
  - **General-purpose timer/counter**
  - **PWM outputs**
  - **Encoder inputs**
- **Dedicated 2-CH 4 MHz encoder inputs, supporting AB phase, and CW/CCW (PCI-9222/9223)**
- **Dedicated DMA channels for A/D, D/A, and high-speed DIO (PCI-9222/9223)**
- **External digital trigger for A/D, D/A, and high-speed DIO (PCI-9222/9223)**
- **Multiple card synchronization through SSI (System Synchronization Interface) bus (PCI-9222/9223)**
- **Auto-calibration**

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 (for PCI-9222/9223)
- DIN-37D-01 (for PCI-9221)
- ACL-10568-1 (for PCI-9222/9223)
- ACL-10137-1MM (for PCI-9221)
- ACL-SSI-2/3/4 (for PCI-9222/9223)

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

Specifications

Model Name	PCI-9221	PCI-9222	PCI-9223
Analog Input			
Resolution	16 Bit		
Number of channels	16 SE/ 8 DIFF	16 SE/ 8 DIFF	32 SE/ 16 DIFF
Maximum sampling rate (single channel)	250 kS/s	250 kS/s	500 kS/s
Programmable gain	1, 5,10, 25	1, 2, 4, 5, 8, 10, 20, 40	1, 2, 4, 5, 8, 10, 20, 40
Input range	±5 V, ±1 V, ±500 mV, ±200 mV	±10 V, ±5 V, ±2.5 V, ±2 V, ±1.25 V, ±1 V, ±500 mV, ±250 mV	±10 V, ±5 V, ±2.5 V, ±2 V, ±1.25 V, ±1 V, ±500 mV, ±250 mV
Offset error	±0.7 mV typical, after calibration		
Gain error	±0.015% of FSR, after calibration		
FIFO buffer size	1 k samples		
Trigger sources	Software, external digital	Software, external digital, SSI	
Trigger mode	Post trigger	Post trigger, retrigger, gate trigger	
Input coupling	DC		
Overvoltage protection	±10 V	Continuous ±30 V	
Input impedance	High impedance > 1 GΩ		
Data Transfer	Polling, scatter-gather DMA		
Analog Output			
Number of channels	2 voltage outputs		
Resolution	16-Bit		
Maximum update rate	1.25 kS/s (static)	1 MHz (simultaneous update)	
FIFO	-	512	
Output range	±5 V	±10 V	
Output driving capacity	±5 mA		
Slew rate	0.014 V/µs	20 V/µs	
Setting time (0.1% of full scale)	1396 µs	2.6 µs	
Offset error	±1 mV		
Gain error	±0.02% FSR	±0.01% FSR	
Rising time	390 µs	0.67 µs	
Falling time	395 µs	0.705 µs	
Function I/O			
Mode	Digital I/O(1) , General Timer/ Counter(1),Pulse Generation(1)	Digital I/O, General Timer/Counter,Pulse Generation	
Digital I/O	8 DI/4 DO (5 V TTL level)	16 DO (3.3 V TTL Level) / 16 DI (3.3 V or 5 V TTL Level)	
General Timer/Counter	Two 32-Bit, Base clock: 40 MHz, external to 10 MHz	Four 32-Bit, Base clock: 80 MHz, external to 10 MHz	
Pulse generation	Two PWM outputs (Modulation frequency: 0.005 Hz to 5 MHz; Duty cycle: 1%-99%)	Four PWM outputs (Modulation frequency: 0.01 Hz to 5 MHz; Duty cycle: 1%-99%)	
Encoder Input			
Number of channels	2(2)		
Encoder type	CW/CCW encoder, x 1 AB phase encoder, x 2 AB phase encoder, x 4 AB phase encoder		
General Specifications			
PCI Bus	5 V and 3.3 V universal PCI bus		
Auto-calibration	Yes		
I/O Connector	One 37-pin D-Sub connector	Two 68-pin SCSI-VHDCI female	
Operation temperature	0˚C to 45˚C (32˚F to 113˚F)	0˚C to 55˚C (32˚F to 131˚F)	
Storage temperature	-20˚C to 80˚C (-4˚F to 176˚F)	-20˚C to 70˚C (-4˚F to 158˚F)	
Humidity	5 to 95% non-condensing		
Power requirements	+5 V 1A typical,+12 V 100mA typical,-12 V 100mA typical	+5 V 1.2 A typical, +12 V 760 mA typical, -12 V 50 mA typical	
Dimensions	120 mm x 87 mm (4.68" x 3.39")	175 mm x 107 mm (6.82" x 4.17")(not including connectors)	

Note:
(1) The function I/O and encoder inputs share the same I/O pins of the PCI-9221. Only one of these modes can be selected.
(2) Dedicated

Ordering Information

PCI-9221
2-CH 16-Bit 250 kS/s Multi-Function DAQ Card with Encoder Input

PCI-9222
16-CH 16-Bit 250 kS/s Multi-Function DAQ Card with Encoder Input

PCI-9223
32-CH 16-Bit 500 kS/s Multi-Function DAQ Card with Encoder Input

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