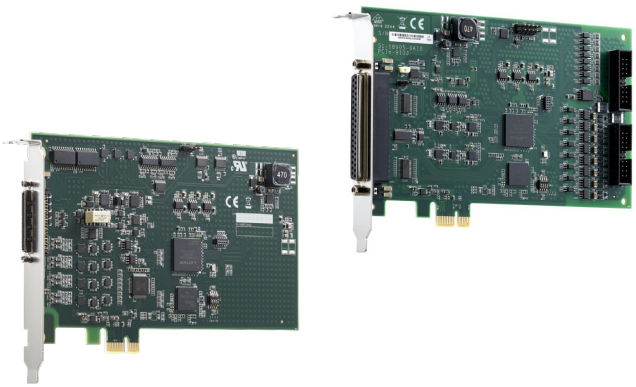
ADLINK
LEADING EDGE COMPUTING

PCIe-9100 Series

Multiplexer/Simultaneous Multi-Function Data Acquisition Card



Features

- PCI Express bus
- High density design to integrate AI/AO/DI/DO functions in one card
- High accuracy with up to 16-bit resolution A/D and D/A
- Supports wide programmable voltage input range of ±10V, ±5V, ±2.5V, ±1.25V, ±0.625V, ±0.3125V
- Up to 2-channel encoder for simple motion control supporting CW/CCW, x1/x2/x4 AB phase encoder
- Direct memory access channels offload CPU utilization
- Fully automated calibration
- Board ID switch
- Easy to use utility/SDK simplifies design effort

Introduction

The PCIe-9100 series are multi-function data acquisition cards with a PCI Express interface for industrial applications. Their high sample rate, high resolution and high density I/O design can help customers easily integrate multiple functions in one card for various applications such data logging, process control, and condition monitoring.

Software Support

- **Operating Systems**
  Windows 7/10/11 x86/x64 or later, Linux
- **Driver and SDK**
  LabVIEW, C/C++, Visual Basic, Visual Studio.NET
- **Software Utility**
  ACE, Soft-Front Panel

Ordering Information

Multiplexer DAQ

- **PCIe-9101**
  16-ch 16-bit 250KS/s Multifunction DAQ
- **PCIe-9121**
  16-ch 14-bit 800KS/s Multifunction DAQ
- **PCIe-9141**
  16-ch 16-bit 1MS/s Multifunction DAQ
- **PCIe-9103**
  32-ch 16-bit 500KS/s Multifunction DAQ

Terminal Boards & Cables

- **DIN-37D-01**
  Terminal board with one 37-pin D-sub connector and DIN-rail mounting (cables not included)
- **ACL-10137-1MM**
  37-pin D-sub male/male cable, 1M
- **ACL-10120-1**
  20-pin flat cable, 1 M

Simultaneous DAQ

- **PCIe-9146**
  4-ch 16-bit 1MS/s Simultaneous Multifunction DAQ
- **PCIe-9147**
  8-ch 16-bit 1MS/s Simultaneous Multifunction DAQ

Terminal Boards & Cables

- **DIN-68S-01**
  68-pin SCSI-II terminal board with DIN-rail mounting (cables not included)
- **ACL-10568-1**
  SCSI 68P(M) to VHDCI 68P cable, 1M

Specifications

Model		PCIe-9101/9121/9141		PCIe-9103	PCIe-9146/47
Analog Input					
Simultaneous/Scanning		Scanning			Simultaneous
Number of Channels		16-ch single-ended (SE) or 8-ch differential input (DI)		32-ch single-ended (SE) or 16-ch differential input (DI)	PCIe-9146: 4-ch PCIe-9147: 8-ch differential input (DI)
Resolution		PCIe-9101/9141: 16-bit PCIe-9121: 14-bit		16-bit	16-bit
Sampling Rate	Single-channel	PCIe-9101: 250 KS/s PCIe-9121: 800 KS/s PCIe-9121: 1 MS/s		500 KS/s	1M S/s
	Scanning	PCIe-9101: 100kS/s PCIe-9121: 400 KS/s PCIe-9141: 500 KS/s			
FIFO Buffer Size		Onboard 4K samples			
Input Range		±10 V, ±5 V, ±2.5 V, ±1.25V, ±0.625V,±0.3125V			
Input Impedance		10MΩ			1GΩ
Input Coupling		DC			
Overvoltage Protection		Continuous ±20V		Continuous ±15V	Continuous ±30V
Trigger Source		Software, Digital, Analog			
Data Transfer		Polling, DMA			
SNR		90 dB	84 dB	90 dB	80 dB
ENOB		14.5-bit	13.5-bit	14.5-bit	13-bit
Analog Output					
Number of Channels		2		N/A	2
Resolution		16-bit			16-bit
Output Range		±10V			±10V
FIFO Buffer Size		Onboard 1K samples (2-channel share)			Onboard 1K samples (2-channel share)
Output Driving Capacity		±20mA max.			±20mA max.
Slew Rate		10 V/μs			10 V/μs
Settling Time (0.1% of Full Scale)		2 us			2 us
Output Coupling		DC			DC
Output Impedance		120 ohm			120 ohm
Trigger Source		Software, Digital			Software, Digital
Data Transfers		Polling, DMA			Polling, DMA

Specifications

Model	PCIe-9101/9121/9141	PCIe-9103	PCIe-9146/47
Digital Input			
Number of Channels	16	16	16
Compatibility	TTL	Isolation	TTL
Input Impedance	pull-low 100Kohm	2.4Kohm/0.5W	pull-low 100Kohm
Input Frequency Range	0.01Hz to 1M Hz	-	0.01Hz to 1M Hz
FIFO Buffer Size	Onboard 512 samples	-	Onboard 512 samples
Isolation	No	Yes	No
Trigger Source	Software, Digital	N/A	Software, Digital
Data Transfer	Polling, DMA	Polling	Polling, DMA
Digital Output			
Number of Channels	16	16	16
Compatibility	TTL	Isolation	TTL
Output Impedance	pull-low 100Kohm	No, default Open	pull-low 100Kohm
Output Frequency Range	0.01Hz to 1M Hz	-	0.01Hz to 1M Hz
FIFO Buffer Size	Onboard 512 samples	-	Onboard 512 samples
Isolation	No	Yes	No
Trigger Source	Software, Digital	N/A	Software, Digital
Data Transfer	Polling, DMA	Polling	Polling, DMA
General Purpose Timer Counter			
Number of Channels	2	1	2
Resolution	32-bit		
Compatibility	TTL	Isolation	TTL
Clock Source	Internal clock fixed to 33M Hz. External clock 0.01Hz to 8M max. Selected by software	Internal clock fixed to 33M Hz. External clock 0.01Hz to 2M max. Selected by software	Internal clock fixed to 33M Hz. External clock 0.01Hz to 8M max. Selected by software
Output Frequency	By internal clock: 16.5MHz By external clock: 32MHz max.	By internal clock: 16.5MHz By external clock: 32MHz max.	By internal clock: 16.5MHz By external clock: 32MHz max.
Encoder			
Number of Channels	N/A		2
Encoder Type	N/A		CW/CCW encoder, x1 AB phase encoder, x2 AB phase encoder, x4 AB phase encoder
General Specification			
Bus Type	PCI Express 1.0		
Bus Width	x1 lane		
Dimensions (mm)	169.55 (L) x 16.15 (W) x 98.4 (H)	169.55 (L) x 16.15 (W) x 98.4 (H)	181.05 (L) x 19.4 (W) x 126.72 (H)
Connector	37-pin D-type connector		68-pin SCSI-type female
Operating Temperature	0°C to 60°C		
Storage Temperature	-40°C to 85°C		
Power Consumption	PCIe-9101: Typical: 71.6 mA@3.3V 261.5 mA@12V Max: 257.8 mA@3.3V 556.24 mA@12V PCIe-9121/9141: Typical: 60.3 mA@3.3V 358.2 mA@12V Max: 246.5 mA@3.3V 652.94 mA@12V	Typical: 113 mA@3.3V/ 292.1 mA@12V Max: 140 mA@3.3V/ 656.2 mA@12V	Typical: 30 mA@3.3V 650 mA@12V Max: 45 mA@3.3V 770 mA@12V