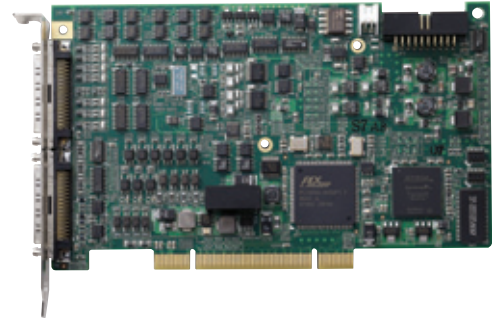NEW

PCI-9524
24-Bit Precision Load Cell Input Card

Features

- ■ Transducer Inputs for precise measurement of large-scale transducers
  - • 4-CH strain gauge-based transducer inputs
  - • Accuracy up to 1/200,000 counts at full-scale
  - • Sensitivity from 1.0 mV/V to 4.0 mV/V
  - • 2.5 / 10 V_{DC} excitation voltage
  - • Internal 24-bit A/D resolution
- ■ Motion Controller for stepper and hydraulic system control
  - • 3-axis motion controller with OUT/DIR and CW/CCW pulse output options
  - • 2-CH 16-bit analog outputs
  - • A-B phase encoder input with 24-bit counter
- ■ General-Purpose Analog Inputs for accurate measurements of LVDT[1] and linear wire potentiometer signals
  - • 4-CH analog input with 24-bit resolution
  - • Programmable gains of +/-1.25 V, +/-2.5 V, +/-5 V, +/-10 V
  - • Up to 30 kS/s sampling rate (single channel)

Note 1: LVDT: Linear Variable Displacement Transducer

- ■ **Supported Operating Systems**
  - • Windows Vista/XP/2000/2003
  - • Linux

- ■ **Recommended Application Environments**
  - • VB.NET/VC.NET/VB/VC++/BCB/Delphi
  - • DAQBench

- ■ **Driver Support**
  - • DAQPilot for Windows
  - • DAQ-LVIEW PnP for LabVIEW™
  - • DAQ-MTLB for MATLAB®
  - • PCIS-DASK for Windows
  - • PCIS-DASK/X for Linux

- ■ **Application**
  - • Material test system
    Combination of these main features makes PCI-9524 an ideal solution for material testing system, CNC machine and civil testing equipment. With all the required functions of measurement and control, PCI-9524 speeds up system development and integration.

Introduction

The PCI-9524 is a robust, multi-purpose module designed for turnkey material test systems (MTS). Equipped with four strain gauge-based transducer input channels, four general purpose analog input channels, and a 3-axis motion controller, the PCI-9524 delivers a complete hardware solution for MTS manufacturers. The PCI-9524 easily integrates physical quantity measurement and implements strategy of close-loop control in a single module package. For transducer measurement, the PCI-9524 supports sensitivity from 1.0 mV/V to 4.0 mV/V and provides a 1/200000 accuracy of measurement of full scale. These features make the PCI-9524 suitable for precise measurement in large-scale transducers.

The PCI-9524 is also equipped with four, 24-bit general purpose analog input channels that allow accurate measurements of the LVDT (Linear Variable Differential Transducer) and Linear wire potentiometer signals to achieve high-resolution of displacement.

With motion control capability and 16-bit DA channels, the PCI-9524 comes with three stepper/servo motor axes and two channels of hydraulic system control function. The built-in incremental encoder feedback channels enable the PCI-9524 to implement the stratagem of MTS' closed-loop control.

The impressive PCI-9524 features permit easy implementation of required control or measurement functionalities with just a single module, saving precious development and integration time for MTS manufacturers.

Specifications

4-channel strain gauge transducer input
- ■ Excitation voltage: 2.5 V/10 V_{DC}
- ■ Internal A/D resolution: 24 bit
- ■ Update speed when Auto-zero Disabled
  - • Up to 30 KSPS (single channel)
  - • Up to 4 KSPS (multi-channel)
- ■ Update speed when Auto-zero Enabled
  - • Up to 800 SPS (single channel or multi-channel)
- ■ Transducer sensitivity: 1.0 mV/V to 4.0 mV/V
- ■ Number of channels: 4
- ■ Accuracy: 1/200000 of full scale (with remote sense & auto zero enabled)
- ■ Onboard 256 samples A/D FIFO

Motion Control
- ■ Number of axis: 3
- ■ Pulse output options: OUT/DIR, CW/CCW (26LS31, differential line driver, driving current: up to 20 mA)
- ■ Maximum output frequency: 500 kHz
- ■ Encoder Input: 24-bit up/down counter for incremental encoder feedback

General Purpose Analog Input
- ■ Resolution: 24-bit
- ■ Programmable range: +/-1.25 V, +/-2.5 V, +/-5 V, +/-10 V
- ■ Number of channels: 4
- ■ Sampling rate: 30 kS/s (non-multiplexing)
- ■ Onboard 256 samples A/D FIFO

Isolated Digital Input
- ■ Number of channels: 8
- ■ Maximum input range (non-polarity): 0 V to 24 V
- ■ Input resistance: 2.7 KΩ

Isolated Digital Output
- ■ Number of channels: 8
- ■ Output type: Power MOSFET
- ■ Sink current: Up to 300 mA/channel

Analog Output
- ■ Resolution: 16-bit
- ■ Output range: +/-10 V
- ■ Number of channels: 2
- ■ Update rate: Up to 5 kS/s
- ■ Onboard 1 K samples D/A FIFO
- ■ Driving capability: 5 mA

Termination Board

- ■ **DIN-68S-01**
  Termination board with one 68-pin SCSI-II connector and DIN-Rail Mounting (Cables are not included. For more information on mating cables, refer to Section 12.)

Pin Assignment

CN1

AI0+	34	68	AI0-
VEXEC0+	33	67	VEXEC0-
VEXEC_SEN0+	32	66	VEXEC_SEN0-
TEDS0(RSV)	31	65	TEDS0_GND(RSV)
AI1+	30	64	AI1-
VEXEC1+	29	63	VEXEC1-
VEXEC_SEN1+	28	62	VEXEC_SEN1-
TEDS1(RSV)	27	61	TEDS1_GND(RSV)
AI2+	26	60	AI2-
VEXEC2+	25	59	VEXEC2-
VEXEC_SEN2+	24	58	VEXEC_SEN2-
TEDS2(RSV)	23	57	TEDS2_GND(RSV)
AI3+	22	56	AI1-
VEXEC3+	21	55	VEXEC1-
VEXEC_SEN3+	20	54	VEXEC_SEN1-
TEDS3(RSV)	19	53	TEDS1_GND(RSV)
AGND	18	52	AGND
AI4+	17	51	AI4-
AI5+	16	50	AI5-
AI6+	15	49	AI6-
AI7+	14	48	AI7-
AGND	13	47	AGND
AGND	12	46	AGND
AGND	11	45	AGND
AGND	10	44	AGND
AGND	9	43	AGND
AGND	8	42	AGND
AGND	7	41	AGND
AGND	6	40	AGND
AGND	5	39	AGND
DA0_OUT	4	38	AGND
AGND	3	37	AGND
DA1_OUT	2	36	AGND
AGND	1	35	AGND

CN2

PULSE0_A+	34	68	PULSE0_A-
PULSE0_B+	33	67	PULSE0_B-
ISO5VDD	32	66	ISOGND
PULSE1_A+	31	65	PULSE1_A-
PULSE1_B+	30	64	PULSE1_B-
ISO5VDD	29	63	ISOGND
PULSE2_A+	28	62	PULSE2_A-
PULSE2_B+	27	61	PULSE2_B-
ISO5VDD	26	60	ISOGND
ENC0_A+	25	59	ENC0_A-
ENC0_B+	24	58	ENC0_B-
ISOPWR	23	57	ISOGND
ENC1_A+	22	56	ENC1_A-
ENC1_B+	21	55	ENC1_B-
ISOPWR	20	54	ISOGND
ENC2_A+	19	53	ENC2_A-
ENC2_B+	18	52	ENC2_B-
ISOPWR	17	51	ISOGND
IDI0+	16	50	IDI0-
IDI1+	15	49	IDI1-
IDI2+	14	48	IDI2-
IDI3+	13	47	IDI3-
ISOPWR	12	46	ISOGND
IDI4+	11	45	IDI4-
IDI5+	10	44	IDI5-
IDI6+	9	43	IDI6-
IDI7+	8	42	IDI7-
ISOPWR	7	41	ISOGND
IDO0	6	40	IDO1
IDO2	5	39	IDO3
EXT_ISOPWR	4	38	ISOGND
ISOPWR	3	37	ISOGND
IDO4	2	36	IDO5
IDO6	1	35	IDO7

Ordering Information

- ■ **PCI-9524**
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