PCI-8136

6-CH Quadrature Encoder and Multi-Function I/O Card ⁞•

Pulse | **Analog** | **DI/O**

Features

● **32-bit PCI bus, plug & play**
● **6-CH 32-bit industrial counter for 3 kinds of differential pulse trains**
  • **A/B phase**
  • **CW/CCW**
  • **Pulse/direction**
● **6-CH differential pulse generators up to 500KHz**
● **6-CH 32-bit position compare with interrupt function**
● **6-CH 16-bit +/- 10V analog output**
● **6-CH 12-bit 133KHz analog single-ended input**
● **19-CH opto-isolated DI, 7-CH open collector DO**
● **Digital I/Os and counters are 2500V$_{DC}$ opto-isolated**
● **One 24-bit programmable timer with interrupt**
● **Auto-calibration for analog I/O**
● **More than 50 thread safe API functions**

◪ Introduction

The PCI-8136 is a high performance industrial counter and Multi-I/O card. What makes it special is the ADPIO function, which is the abbreviation of Analog/Digital/ Pulse Input/Output.
 • Analog Input: 6 channels
  • Analog Output: 6 channels
  • Digital Input: 19 channels
  • Digital Output: 7 channels
  • Pulse Input (Industrial Counter): 6 channels
  • Pulse Output (Pulse Generator): 6 channels

Besides, the PCI-8136 provides some useful functions for industrial applications.
  • One 24-bit programmable interrupt timer with 33MHz base clock
 • Position compare: 6 channels

Analog Input
The PCI-8136 provides 6 12-bit A/D converter channels. The analog source is selectable for each channel to be ±10VDC (Default) or 0~20mA by soldering a 124Ω DIP resistance which is shipped with PCI-8136.
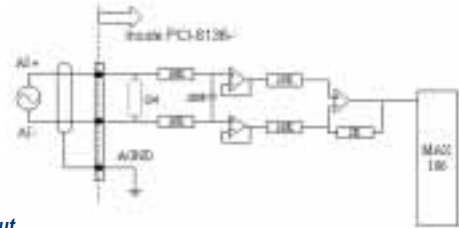

Analog Output
The PCI-8136 provides 6 16-bit Digital-to- Analog converter channels. The output voltage ranged from -10V to +10V. The Analog outputs are all single ended with common ground "AGND".
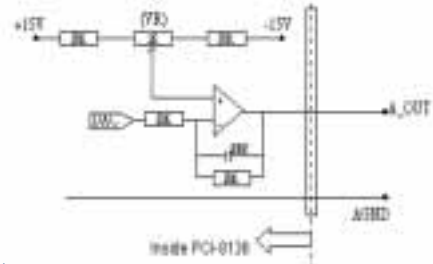

Digital Input
The PCI-8136 provides 19 digital inputs with 2500Vrms isolation. The system recognizes a logical "1" when no current goes from COM+ to DIO and, Logical "0" is returned when current goes from COM+ to DIO. The max current passing trough DIO must be less than 20mA.
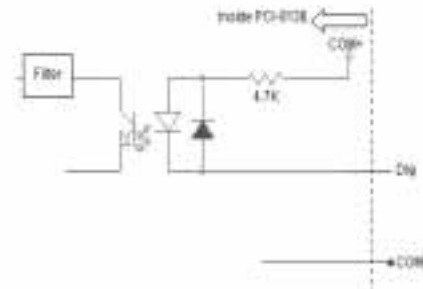
Digital Output
The PCI-8136 provides 7 open collector outputs with 2500Vrms isolation. The maximum output switching frequency is 10KHz, and the continuous output supply current is subject to 500mA/ (total), 100mA/CH (typical) ,and 268mA/CH (max).
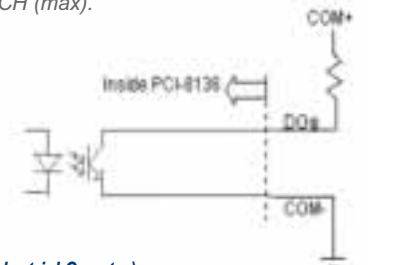
Pulse Input (Industrial Counter)
The PCI-8136 provides 6 differential pulse inputs with 2500Vrms isolation. The pulse mode is software programmable to be AB- phase, CW/CCW, or Pulse/Direction, and the counter speed goes up to 2MHz.

1 Software

2 GEME

3 Motion Control

4 Machine Vision

5 High Speed Link

6 Communications

7 cPCI & IPC

8 NuDAM
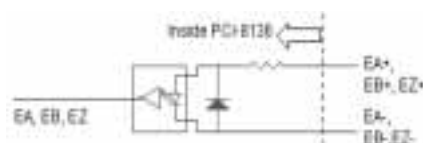
Pulse Output (Pulse Generator)
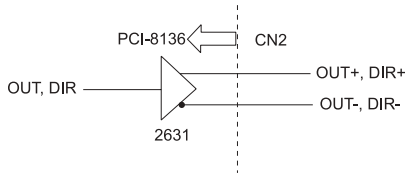
The PCI-8136 provides 6 differential pulse output channels. The pulse mode is software programmable to be Pulse/Direction, CW/CCW, or AB-phase, and the output frequency goes up to 500KHz.

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PCI-8136       CN2
                          OUT+, DIR+
OUT, DIR                  OUT-, DIR-
              2631
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◤ Specifications

General Specifications

Connectors	100-pin SCSI-type connector
	DB25 female connector
	DB9 male connector
Operating Temperature	0°C ~ 50°C
Storage Temperature	-20°C ~ 80°C
Humidity	5 ~ 85%, non-condensing
Power Consumption	Slot power supply (input): +5VDC, ±5%, 900mA max.
	External power supply (input): +24VDC, ±5%, 500mA max.
	External power supply (output): +5VDC, ±5%, 500mA, max.
	Dimension: 164mm (L) x 98.4mm (H)

Pulse Input (Industrial Counter)

6 differential input channels

32-bit counter for AB-phase, CW/CCW, Pulse/Direction

2500V$_{DC}$ optical isolation Max. counter speed: 3MHz

Pulse Output (Pulse Generator)

6 output channels with differential Drivers

Pulse command type: CW/CCW, Pulse /Direction, A/B Phase

Max. pulse rate: 500KHz

Analog Input

Channel numbers	6 differential/single-end input channels
Input range	Voltage: ±10V
	Current: 0~20 mA
	12-bit ADC with 1-bit non-linearity
Input impedance approx	440KΩ (Voltage)
	120Ω (Current)
Sampling rate	133 KHz multiplexing

Analog Output

Channel numbers	6 output channels
Output range	bipolar ±10V
	16-bit DAC resolution, 14-bit accuracy guarantee
Settling time	2μ second

Digital Output

Channel numbers	7 Output channels
Output type	open collector
Sink current	100mA/Ch (typical)
	268mA/Ch (max.)
	500mA/total
Isolated voltage	2500Vrms
Throughput	10KHz (0.1ms)

Timer

	One programmable timer interrupt
Base clock	33MHz by PCI bus
Timer range	24-bit

◤ Software Support
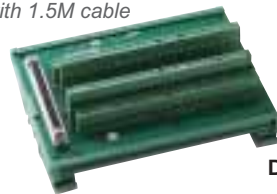
Windows® Platform

Available for Windows 2K/XP/Vista

VB/VC++/BCB/Delphi are recommended programming environment.

Linux Platform

Fedora Core 3, kernel 2.6.9

Fedora Core 4, kernel 2.6.11

◤ Termination Board

Termination board for general purpose with 1.5M cable

DIN-100M15

Ordering Information

PCI-8136	6-CH quadrature encoder and multi-function I/O card
DIN-100M15	Termination board for general purpose with 1.5M cable
DIN-100M30	Termination board for general purpose with 3M cable

CN1 Pin Assignment

Left	#	#	Right
AGND	1	51	AGND
DAC1	2	52	DAC2
DAC2	3	53	DAC4
DAC3	4	54	DAC6
VCC+5v	5	55	EXGND
EX+24v	6	56	EXGND
EX+24v	7	57	(DI18)ALM
EX+24v	8	58	(DO6)P_RDY
ORG1(DI0)	9	59	(DI1)ORG2
PEL1(DI6)	10	60	(DI8)PEL2
MEL1(DI7)	11	61	(DI9)MEL2
SVON1(DO0)	12	62	(DO1)SVON2
ORG3(DI2)	13	63	(DI3)ORG4
PEL3(DI10)	14	64	(DI12)PEL4
MEL3(DI11)	15	65	(DI13)MEL4
SVON3(DO2)	16	66	(DO3)SVON4
ORG5(DI4)	17	67	(DI5)ORG6
PEL5(DI14)	18	68	(DI16)PEL6
MEL5(DI15)	19	69	(DI17)MEL6
SVON5(DO4)	20	70	(DO5)SVON6
EA1+	21	71	EA2+
EA1-	22	72	EA2-
EB1+	23	73	EB2+
EB1-	24	74	EB2-
EZ1+	25	75	EZ2+
EZ1-	26	76	EZ2-
EA3+	27	77	EA4+
EA3-	28	78	EA4-
EB3+	29	79	EB4+
EB3-	30	80	EB4-
EZ3+	31	81	EZ4+
EZ3-	32	82	EZ4-
EA5+	33	83	EA6+
EA5-	34	84	EA6-
EB5+	35	85	EB6+
EB5-	36	86	EB6-
EZ5+	37	87	EZ6+
EZ5-	38	88	EZ6-
OUT1+	39	89	OUT2+
OUT1-	40	90	OUT2-
DIR1+	41	91	DIR2+
DIR1-	42	92	DIR2-
OUT3+	43	93	OUT4+
OUT3-	44	94	OUT4-
DIR3+	45	95	DIR4+
DIR3-	46	96	DIR4-
OUT5+	47	97	OUT6+
OUT5-	48	98	OUT6-
DIR5+	49	99	DIR6+
DIR5-	50	100	DIR6-

CN3 Pin Assignment

Left	#	#	Right
G2SIOCLK/	1	14	G2SIOCLK
G2SCS0	2	15	G2SCS0/
G2S2MD/	3	16	G2S2MD/
G2S2SD/	4	17	G2S2SD/
AGND	5	18	DAC1
DAC2	6	19	DAC2
ADC1-	7	20	ADC1+
ADC2-	8	21	ADC2+
ADC3-	9	22	ADC3+
ADC4-	10	23	ADC4+
ADC5-	11	24	ADC5+
ADC6-	12	25	ADC6+
AGND	13		