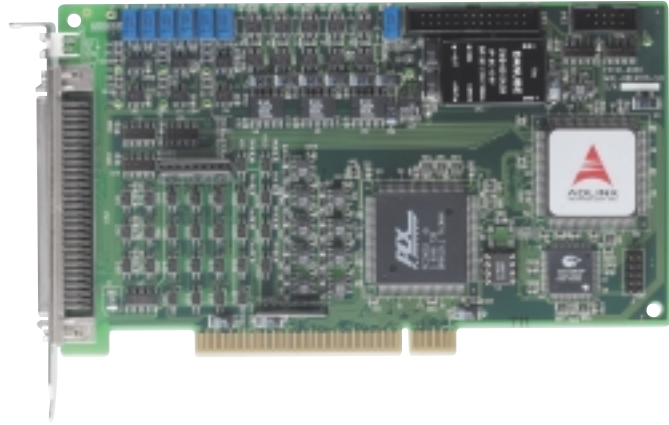


PCI-8136

6-CH Quadrature Encoder and Multi-function I/O Card

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



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.

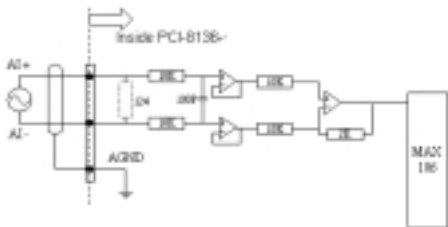
- ◆ Analog Input: 6 channels
- ◆ Analog Output: 6 channels
- ◆ Digital Input: 19 channels
- ◆ Digital Output: 7 channels
- ◆ Pulse Input (Industrial Counter): 6 channels
- ◆ Pulse Output (Pulse Generator): 6 channels

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

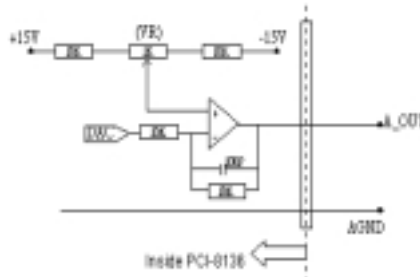
Analog Input

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



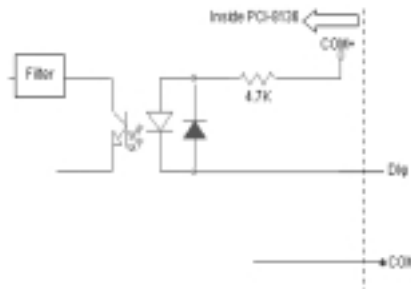
Analog Output

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

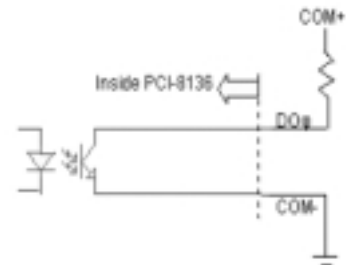
The PCI-8136 provides 19 digital inputs with 2500V_{rms} isolation. The system recognizes a logical "1" when no current goes from COM+ to DIO and, Logical "0" is returned when current goes from COM+ to DIO. The max current passing through DIO must be less than 20mA.



Digital Output

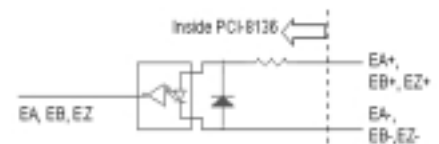
The PCI-8136 provides 7 open collector outputs with 2500V_{rms} isolation. The maximum output switching frequency is 10KHz, and the continuous output supply current is subject to 500mA (total), 100mA/CH (typical), and 268mA/CH (max).

Example of Digital Output Wiring



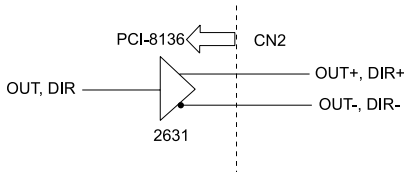
Pulse Input (Industrial Counter)

The PCI-8136 provides 6 differential pulse inputs with 2500V_{rms} isolation. The pulse mode is software programmable to be AB-phase, CW/CCW, or Pulse/Direction, and the counter speed goes up to 2MHz.



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.



Software Support

- ◆ Windows 95/98/NT/2000 DLL
- ◆ BC3.1 library on DOS

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): +5V_{DC}, ±5%, 900mA max.
 - External power supply (input): +24V_{DC}, ±5%, 500mA max.
 - External power supply (output): +5V_{DC}, ±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

- ◆ 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

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

Digital Input

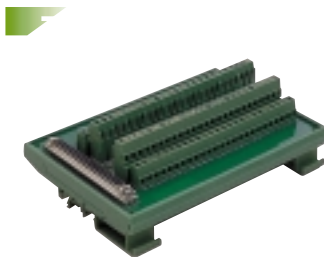
- ◆ 19 input channels
- ◆ Input voltage
 - Logical high: 3 ~ 24V
 - Logical low: 0 ~ 1.5V
- ◆ Input impedance: 4.7KΩ@0.5W
- ◆ Isolated voltage: 2500V_{DC}
- ◆ Throughput: 10KHz (0.1ms)

Digital Output

- ◆ 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



Pin Assignment figure.3: DB25 (female)

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)	

Pin Assignment Figure.2: 100-PIN SCSI Type

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	(DI19)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-

Ordering Information

- ◆ **PCI-8136**
6-CH quadrature encoder and multi-function I/O card

Note: The products are shipped with software development kit for DOS/Windows 95/98/NT/2000.