

PCI-8164

Advanced 4-axis Stepping & Servo Motion Control Card

Features

- 32-bit PCI bus, plug & play
- Pulse output rate up to 6.55 MHz
- Pulse output options: OUT/DIR, CW/CCW
- 2-4 axes linear interpolation
- 2 axes circular interpolation
- Multi-axis continuous interpolation
- Change position or speed on-the-fly
- 13 home return modes including auto searching
- Hardware position compare and trigger with auto-loading FIFO
- High speed position latch function
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- 28-bit up/down counter for incremental encoder
- Simultaneously start/stop on multiple axes
- Programmable interrupt sources
- Supports up to 12 cards in one system
- Hardware backlash compensator
- Software limit function
- Easy interface to any stepping motors, AC or DC servo motors
- All digital input and output signals are 2500 VRMS isolated
- Manual pulser input interface



Introduction

Advanced 4 axes motion controller

The PCI-8164 is an advanced 4-axis motion control card. It contains all the functions provided by previous PCI-8134, such as linear, trapezoidal and S-curve velocity profile. Furthermore, many new features/functions are introduced.

Velocity or Position Override

The PCI-8164 provides powerful position or speed changing function while axis is moving. Changing speed/position on the fly means the target speed/position can be altered after the motion started.

Linear & Circular Interpolation

In multi-axis operation, the PCI-8164 provides linear interpolation by any 2, any 3, or even all-4 axes. Besides any 2 axes can perform circular interpolation.

Continuous Interpolation

The pre-register architecture of PCI-8164 helps to build the continuous interpolation function, i.e. the second motion may follow previous motion instantly without latency. Thus perfect velocity continuity can be established.

Hardware Position Compare and Trigger Output

The PCI-8164 provides position compare and trigger functions. The CMP channel will output a trigger pulse when encoder counter reached the compared value preset by user. Comparison is done by hardware, and an on-board FIFO is implemented to auto-reload comparing data. Thus, the trigger rate can be reach 30k, while almost no CPU time is needed. The trigger pulse width is about 33μsec.

Position Latch

The latch function is to capture the instant counter value of related axis when latch signal activate. LTC channel is used to receive that latch pulse. The latch function is done by hardware without any software delay.

Automatic Backlash Compensation

Whenever direction change is occurred, The PCI-8164 outputs backlash corrective pulses before sending commands. During interpolation mode, this function will be ineffective.

13 home Return Modes

To fit into various mechanical design and operating restrictions, PCI-8164 provides 13 home moving modes for users to choose as their best convenience.

Simultaneously Start/Stop

By using software program or external input signal, PCI-8164 can perform simultaneously Start/Stop function on multi-axis in one card or multi-axis in multi-card. And, the simultaneously stop function is selectable to be active when some axes is abnormally stopped.

Application

- Electric Assembly
- Semiconductor, LCD Manufacturing and Measurement
- Laboratory Automation
- Vision & Photocomposition Automation
- Biotech Sampling and Handling
- Robotic
- CNC Machine

Comparison of PCI-8132, PCI-8134 and PCI-8164

	8132	8134	8164
Number of Axes	2	4	4
Position Compare	Yes	No	Yes
FIFO Auto-reload	No	No	Yes
Position Latch	No	No	Yes
Linear Interpolation	2-axis	2-axis	4-axis
Circular Interpolation	No	No	Yes
Continuous Interpolation	No	No	Yes
Home Return Mod	3	3	13
General I/O	16DI/16DO	None	6TTL