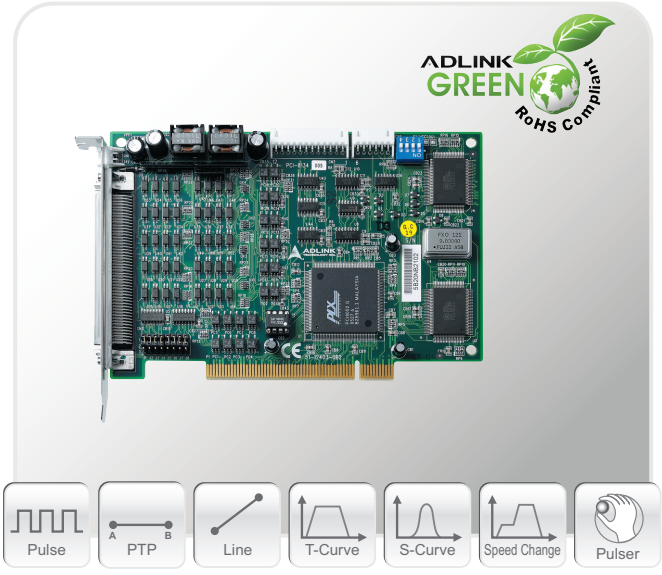
PCI-8134

Entry-level 4-axis Stepper & Servo Motion Control Card



Features

- 32-bit PCI bus, Rev. 2.2, 33MHz
- Pulse output rate up to 2.4MHz
- Pulse output options: OUT/DIR, CW/CCW
- 2 axes linear interpolation
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- Easy interface to any stepping motors, AC or DC servo, linear or rotary motors
- 28-bit up/down counter for incremental encoder
- All digital inputs and outputs are 2500V_{RMS} isolated
- Change speed on-the-fly
- Multi-axis, simultaneous start/stop
- Dedicated I/O interface for PEL, MEL, ORG, EZ, INP, ERC, ALM
- Programmable interrupt sources
- Manual pulser input interface
- Supports up to 12 cards in one system
- 3 ASIC-based home return modes and 9 software-based home return modes
- More than 75 thread safe API functions

Software Support

Windows® Platform

Available for Windows Vista32/XP/2000

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

Various sample programs with source codes

Customized API functions are possible

LabVIEW® VIs

The motion VIs of PCI-8134 for LabVIEW is available.

MotionCreatorPro ™

MotionCreatorPro™ assists the motion system developer to debug any cabling problem, and solve the difficulty of system configuration before programming.

Linux Platform

Redhat 9, kernel 2.4.x	SUSE 10, kernel 2.6.13
Fedora Core 3, kernel 2.6.9	Fedora Core 5, kernel 2.6.15
Fedora Core 4, kernel 2.6.11	

Introduction

PCI Interface

ADLINK PCI-8134 is a 4-axis motion control card based on PCI bus. The PCI interface provides plug-and-play feature that is the key to easy maintenance. The maximum number of cards in one system is 12 cards with capability of controlling 48 motors.

Motion Control Principle

The PCI-8134 can generate high frequency pulse train. The frequency of the pulse train controls the motor speed; the number of pulse controls the motor position. The differential input/output signals reduce noise interference. The command output options, including DIR/OUT mode and CW/CCW mode, provide an easy access to various stepper or servo motor drivers.

Velocity Profile

The PCI-8134 offers versatile trajectory planning ability. The acceleration and deceleration time are programmable. The S-curve helps to avoid mechanism vibration. The hardware linear interpolation between two axes is powerful to reduce software computation effort.

Operation Modes

Various operation modes are available, such as continuous velocity motion, absolute move, relative move, manual pulser mode, simultaneous move, change speed on the fly, linear interpolation, and home return.

Encoder Interface

Incremental encoder interface is used for position feedback. The encoder counters provides the position information to correct the position error generated by inaccurate mechanical transmissions. The differential-type encoder feedback avoids noise interference. The 28-bit counters cover the position range for most applications.

Mechanism Interface

The pre-defined limit switch sensors on table are widely used to protect the mechanism. The dedicated I/O interface for end-limit, slow-down point, and origin is very useful for system integration.

Servo Drive Interface & GPIO

Some servo motor drivers provide interfacing signals such as in-position (INP), alarm (ALM), error counter clear (ERC), servo ready signals. These signal interfaces are supported.

Pulser Interface

The handle-wheel pulser is widely used in machine applications, such as NC machine. Four pulser interfaces are available through the CN3 connector (10-pin).

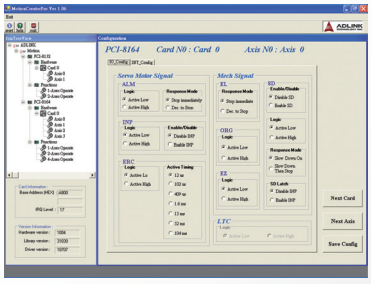
Interrupt Events

Many hardware status can be used as interrupt events, such as limit switch, alarm, moving home ready, one movement finished, and so on.

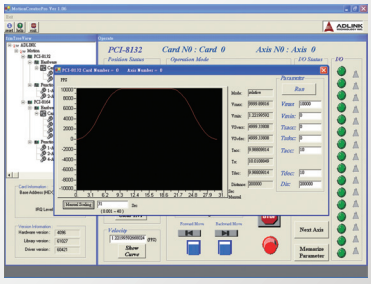
Applications

- Semiconductor front & back end equipment
- TFT/LCD manufacturing equipment
- Electronic Assembly and Testing equipment
- Automatic Optical Inspection Equipment
- Flight/Vehicle Simulator in military and video game
- Dispenser Machinery
- Cutting or Carving Machinery

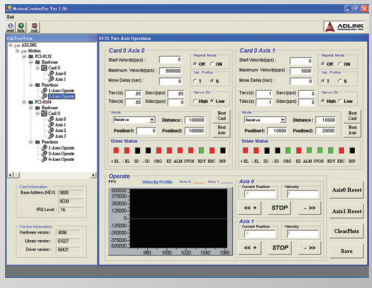
Control Axis Setting By Tree Directory



Speed Profile Preview



Multiple Axes Access within One Window



MotionCreatorPro™

Specifications

Motion

- Number of controllable axes: 4
- Max. number of cards in one system: 12
- 0.03 pps to 2.4 Mpps programmable DIR/OUT, CW/CCW pulse command output
- Max. acceleration rate: 91 MPPS^2
- Speed resolution: 16-bit
- One 28-bit counter for encoder input of each axis
- Positioning range: -134,217,728 to +134,217,727 (28-bit)
- Encoder input frequency: 2.4MHz @ 3M cable

Motion Interface I/O Signals

- All I/O pins are 2500V$_{RMS}$ optically isolated
- Incremental encoder signals input pins: DIR/OUT, EA/EB
- Encoder index signal input: EZ
- Mechanical Limit/Switch signal input pins: ±EL, ±SD and ORG
- Servomotor Interface I/O pins: INP, ALM, ERC
- General DO pin: SVON
- General DI pin: RDY
- Pulser signal input: PA and PB
- Simultaneous signal I/O pins: STA and STP

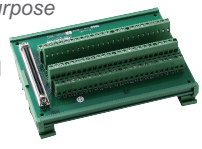
Ordering Information

PCI-8134	Entry-level 4-axis stepper & servo motion control card
DIN-100S-01	Termination board for general purpose
DIN-814M0	Termination board for Mitsubishi MR-J2S-A servo amplifier
DIN-814M -J3A0	Termination board for Mitsubishi MR-J3-A amplifier
DIN-814PA0	Termination board for Panasonic MINAS A servo amplifier with 1M cable
DIN-814Y0	Termination board for Yaskawa Sigma II amplifier
DIN-814P-A40	Termination board for Panasonic MINAS A4 amplifier
Cable	ACL-102100

Termination Board

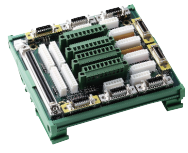
- *DIN-100S-01: General Purpose*

DIN-100S-01



- *DIN-814M0: For Mitsubish MR-J2S-A Servo Amplifier*

DIN-814M0

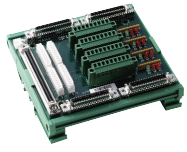


- *DIN-814M-J3A0: For Mitsubishi MR-J3-A Amplifier*

DIN-814M-J3A0

- *DIN-814PA0: For Panasonic MINAS A Servo amplifier*

DIN-814PA0

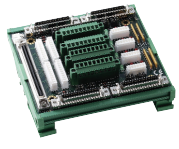


- *DIN-814Y0: For Yaskawa Sigma II Amplifier*

DIN-814Y0

- *DIN-814P-A40: For Panasonic MINAS A4 Amplifier*

DIN-814P-A40



PCI-8134 Pin Assignment of the 100-pin SCSI-type Connector

EX+5V	1	51	EX+5V
EXGND	2	52	EXGND
OUT 1+	3	53	OUT 3+
OUT 1-	4	54	OUT 3-
DIR 1+	5	55	DIR 3+
DIR 1-	6	56	DIR 3-
SVON1	7	57	SVON3
ERC1	8	58	ERC3
ALM1	9	59	ALM3
INP1	10	60	INP3
RDY1	11	61	RDY3
EXGND	12	62	EXGND
EA1+	13	63	EA3+
EA1-	14	64	EA3-
EB1+	15	65	EB3+
EB1-	16	66	EB3-
EZ1+	17	67	EZ3+
EZ1-	18	68	EZ3-
EX+5V	19	69	EX+5V
EXGND	20	70	EXGND
OUT 2+	21	71	OUT 4+
OUT 2-	22	72	OUT 4-
DIR 2+	23	73	DIR 4+
DIR 2-	24	74	DIR 4-
SVON2	25	75	SVON4
ERC2	26	76	ERC4
ALM2	27	77	ALM4
INP2	28	78	INP4
RDY2	29	79	RDY4
EXGND	30	80	EXGND
EA2+	31	81	EA4+
EA2-	32	82	EA4-
EB2+	33	83	EB4+
EB2-	34	84	EB4-
EZ2+	35	85	EZ4+
EZ2-	36	86	EZ4-
+EL1	37	87	EL3+
+EL1	38	88	EL3-
+SD1	39	89	SD3+
-SD1	40	90	SD3-
ORG1	41	91	ORG3
EXGND	42	92	EXGND
+EL2	43	93	EL4+
+EL2	44	94	EL4-
+SD2	45	95	SD4+
-SD2	46	96	SD4-
ORG2	47	97	ORG4
EXGND	48	98	EXGND
EXGND	49	99	EX+24V
EXGND	50	100	EX+24V