PCI-8132

Entry-level 2-axis Stepper & Servo Motion Control Card with 32-CH GPIO

Features

- 32-bit PCI bus, Rev2.2, 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 which have pulse train input mode
- 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
- Hardware position compare and trigger pulse output
- 16-CH general purpose input/16-CH general purpose output
- 3 home return modes
- More than 100 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-8132 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-8132 is a 2-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 24 motors.

Motion Control Principle

The PCI-8132 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 amplifier.

Velocity Profile

The PCI-8132 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 Amplifier 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).

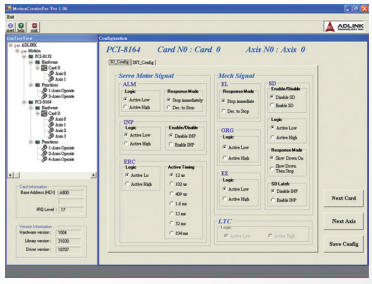
Interrupt Events

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

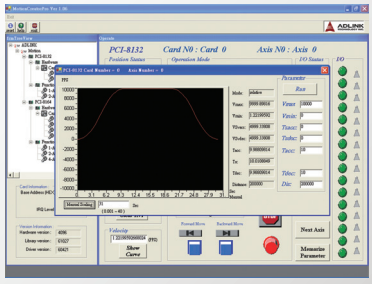
Applications

- 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

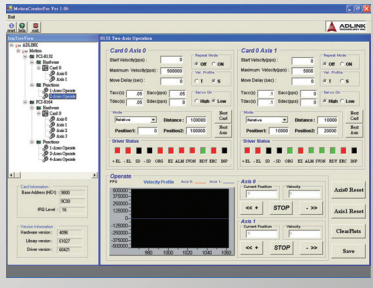
Control Axis Setting By Tree Directory



Speed Profile Preview



Multiple Axes Access within One Window



MotionCreatorPro™

Specifications

Motion

- Number of controllable axes: 2
- Max. number of cards in one system: 12
- 0.03pps to 2.4Mpps programmable DIR/OUT, CW/CCW pulse command output
- Max. acceleration rate: 91Mpps^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

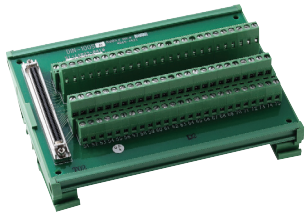
- All I/O pins are 2500V$_{RMS}$ optically isolated
- Incremental encoder signals input pins: DIR/OUT, EA/EB
- Encoder index signal input: EZ
- Mechanical Limit/Switch signal input pins: ±EL, ±SD and ORG
- Servomotor Interface I/O pins: INP, ALM, ERC
- General DO pin: SVON
- General DI pin: RDY
- Pulser signal input: PA and PB
- Simultaneous signal I/O pins: STA and STP
- Position compare output pin: CMP (1 KHz for continous triggering)

General-Purposed I/O

- 16-CH input & 16-CH output

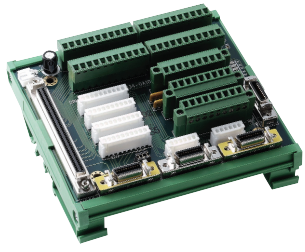
Termination Board

• *DIN-100S-01: General Purpose*



DIN-100S-01

• *DIN-812M0: For Mitsubish MR-J2S-A Servo Amplifier*



DIN-812M0

Ordering Information

PCI-8132	Entry-level 2-axis stepper & servo motion control card with GPIO
DIN-812M0	Termination board for Mitsubishi MR-J2S-A servo amplifier
DIN-100S-01	Termination board for general purpose
Cable	ACL-102100

PCI-8132 Pin Assignment of the 100-pin SCSI-type Connector

VPP+5V	1	51	DO COM+
EXGND	2	52	EXGND
OUT 1+	3	53	DO0
OUT 1-	4	54	DO1
DIR 1+	5	55	DO2
DIR 1-	6	56	DO3
SVON1	7	57	DO4
ERC1	8	58	DO5
ALM1	9	59	DO6
INP1	10	60	DO7
RDY1	11	61	DO8
EXGND	12	62	DO9
EA1+	13	63	DO10
EA1-	14	64	DO11
EB1+	15	65	DO12
EB1-	16	66	DO13
EZ1+	17	67	DO14
EZ1-	18	68	DO15
VPP+5V	19	69	EXGND
EXGND	20	70	EXGND
OUT 2+	21	71	DI COM+
OUT 2-	22	72	DI COM-
DIR 2+	23	73	DI0
DIR 2-	24	74	DI1
SVON2	25	75	DI2
ERC2	26	76	DI3
ALM2	27	77	DI4
INP2	28	78	DI5
RDY2	29	79	DI6
EXGND	30	80	DI7
EA2+	31	81	DI8
EA2-	32	82	DI9
EB2+	33	83	DI10
EB2-	34	84	DI11
EZ2+	35	85	DI12
EZ2-	36	86	DI13
PEL1	37	87	DI14
MEL1	38	88	DI15
PSD1	39	89	EXGND
MSD1	40	90	EXGND
ORG1	41	91	PA+
EXGND	42	92	PA-
PEL2	43	93	PB+
MEL2	44	94	PB-
PSD2	45	95	EXGND
MSD2	46	96	CMP1
ORG2	47	97	CMP2
EXGND	48	98	EXGND
EXGND	49	99	VPP+24V
EXGND	50	100	VPP+24V