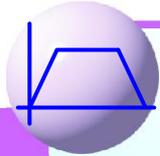


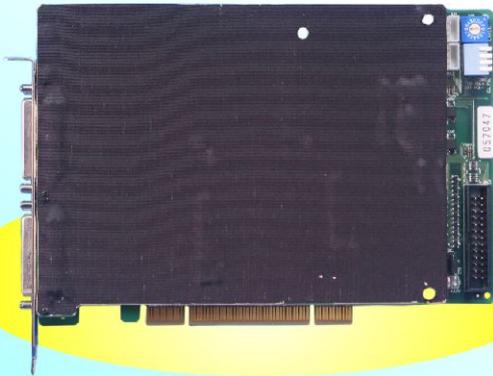


# Bridging the Gap between Real World and Computer



## MPC3028A

### 8-axis Motion Control Card (Servo/Stepping Motor Control)



### Introduction

MPC3028A is an 8-axis motion control card for complex application in precision motion requirements. It involved point to point, linear and circular interpolation control function. Up to 16 identical cards can be hooked on same IPC provision for multiple-axes control

Dll and Driver are provided for WinXP, Win7 and later or LINUX platform and its sample programs come with VB source code.

### Various Homing Modes

Total of 14 homing modes are available to meet various mechanism requirements. Additional zero phase inputs from encoder for accurate positioning and absolute homing reference.

### Motion Control

Linear interpolation from 1 axis to 8 axes is programmable, circular interpolation from any two of X, Y, Z, A axes or any two of B, C, D, Z axes.

Backlash compensation for accurate position. Speed change on the fly, 8 28-bit counters for feedback and 4 28-bit counters for pulse handler input give the maximum extend of motion control.

### Digital I/O

Motion related I/O's such as LS+, LS-, Home and general I/O are all isolated by photo couplers. I/O signals polarity can be changed by DIP switch or software, nibble configurable TTL IO for general purpose application, 8 isolated digital I/P and 8 isolated digital O/P for external device control.

### Applications

- ▶ Precision positioning control
- ▶ X-Y table control
- ▶ Rotary machine control
- ▶ Robotics control
- ▶ Biotech sampling and handling
- ▶ Any combined control servo and stepping Motor
- ▶ Contouring control
- ▶ Precision speed control
- ▶ NC pipe bender
- ▶ NC spring forming machine

### Features

- ▶ 8-axis servo / stepping motor control
- ▶ 8 28-bit up / down counters for incremental encoder
- ▶ 4 28-bit up / down counters for pulse handler input
- ▶ Pulse output rate up to 6.55MHz
- ▶ Pulse output options : OUT/DIR, CW/CCW
- ▶ 2~8 axes liner interpolation
- ▶ Circular interpolation of the same chip : any 2 axes
- ▶ S curve or T curve acceleration / deceleration in interpolation and positioning
- ▶ Continuous interpolation
- ▶ Speed change on-the-fly
- ▶ Synchronized start motion
- ▶ Position latch function
- ▶ Simultaneously start/stop on multi-axes
- ▶ Programmable interrupt conditions
- ▶ Backlash compensation
- ▶ Pulse handler function
- ▶ Software limit switches protection
- ▶ Motion parameters change on the fly
- ▶ 2 nibble configurable digital TTL I/O
- ▶ 8 isolated digital I/P
- ▶ 8 isolated digital O/P

### Specifications (With Matched Wiring Board)

#### Motion

- ▶ Max Pulse Rate : 6,553,500 pps
- ▶ Pulse Output Mode : Single phase : CLOCK, DIR  
Dual phase : CW, CCW
- ▶ Acceleration / Deceleration mode-linear, S-curve
- ▶ Homing Mode : 14 types
- ▶ Encoder Up/Down Counter : 4 28-bit counter
- ▶ Pulse Handle Up/Down Counter : 4 28-bit counter
- ▶ Linear Interpolation : any 2 up to 8 axes
- ▶ Circular Interpolation : any 2 axes (of the same chip)

#### Digital I/O

- ▶ Motion Specific Input : SRDY, ALM, LS+, LS-, SD, ORG, PCS, LTC, INP per axis, EMG per card
- ▶ Motion Specific Output : CMP, SVON, ERC, FIN per axis
- ▶ General : 8 TTL, nibble configurable
- ▶ Isolated : 8 I/P, 8 O/P

#### Main Card General

- ▶ Card ID : 16 locations set by rotary switch
- ▶ Insulation Resistance : 100M Ohm (min) at 1000Vdc
- ▶ Isolation Voltage : 2500Vac 1Min
- ▶ I/O Connector : 4 68-pin female mini SCSI connector  
20-pin flat cable  
25P D type connector
- ▶ External Supply : 24Vdc ± 4Vdc
- ▶ Operation Temperature : 0 °C ~ +70 °C
- ▶ Storage Temperature : -20 °C ~ +80 °C
- ▶ Operation Humidity : 5~95% RH, non-condensing
- ▶ Dimensions : 175(W)\*122(H)mm, 6.9(W)\*4.8(H)in



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## Pin Assignments

JF2 / JF1			JF5 / JF6		
+24Vin	68 34	+24Vin	+24Vin	34 68	+24Vin
+5Vin	67 33	+5Vin	+5Vin	33 67	+5Vin
EXTG	66 32	EXTG	EXTG	32 66	EXTG
NC	65 31	NC	NC	31 65	NC
EXTG	64 30	EMG	EMG	30 64	EXTG
NC	63 29	NC	NC	29 63	NC
NC	62 28	NC	NC	28 62	NC
NC	61 27	NC	NC	27 61	NC
NC	60 26	NC	NC	26 60	NC
NC	59 25	NC	NC	25 59	NC
NC	58 24	NC	NC	24 58	NC
(Y/A) ERC	57 23	SVON (Y/A)	(C/E) SVON	23 57	ERC (C/E)
(Y/A) ALM	56 22	SRDY (Y/A)	(C/E) SRDY	22 56	ALM (C/E)
(Y/A) INP	55 21	CCW- (Y/A)	(C/E) CCW-	21 55	INP (C/E)
(Y/A) CCW+	54 20	CW- (Y/A)	(C/E) CW-	20 54	CCW+ (C/E)
(Y/A) CW+	53 19	EZ- (Y/A)	(C/E) EZ-	19 53	CW+ (C/E)
(Y/A) EZ+	52 18	EB- (Y/A)	(C/E) EB-	18 52	EZ+ (C/E)
(Y/A) EB+	51 17	EA- (Y/A)	(C/E) EA-	17 51	EB+ (C/E)
(Y/A) EA+	50 16	CMP (Y/A)	(C/E) CMP	16 50	EA+ (C/E)
(Y/A) FIN	49 15	LTC (Y/A)	(C/E) LTC	15 49	FIN (C/E)
(Y/A) PCS	48 14	HOME (Y/A)	(C/E) HOME	14 48	PCS (C/E)
(Y/A) SD	47 13	LS- (Y/A)	(C/E) LS-	13 47	SD (C/E)
(Y/A) LS+	46 12	ERC (X/Z)	(B/D) ERC	12 46	LS+ (C/E)
(X/Z) SVON	45 11	ALM (X/Z)	(B/D) ALM	11 45	SVON (B/D)
(X/Z) SRDY	44 10	INP (X/Z)	(B/D) INP	10 44	SRDY (B/D)
(X/Z) CCW-	43 9	CCW+ (X/Z)	(B/D) CCW+	9 43	CCW- (B/D)
(X/Z) CW-	42 8	CW+ (X/Z)	(B/D) CW+	8 42	CW- (B/D)
(X/Z) EZ-	41 7	EZ+ (X/Z)	(B/D) EZ+	7 41	EZ- (B/D)
(X/Z) EB-	40 6	EB+ (X/Z)	(B/D) EB+	6 40	EB- (B/D)
(X/Z) EA-	39 5	EA+ (X/Z)	(B/D) EA+	5 39	EA- (B/D)
(X/Z) CMP	38 4	FIN (X/Z)	(B/D) FIN	4 38	CMP (B/D)
(X/Z) LTC	37 3	PCS (X/Z)	(B/D) PCS	3 37	LTC (B/D)
(X/Z) HOME	36 2	SD (X/Z)	(B/D) SD	2 36	HOME (B/D)
(X/Z) LS-	35 1	LS+ (X/Z)	(B/D) LS+	1 35	LS- (B/D)

ADP9201_JM1		
IN0	1 2	OUT0
IN1	3 4	OUT1
IN2	5 6	OUT2
IN3	7 8	OUT3
IN4	9 10	OUT4
IN5	11 12	OUT5
IN6	13 14	OUT6
IN7	15 16	OUT7
0V	17 18	0V
EXT +24Vin	19 20	EXT +24Vin

JM3		
+5Vout_PC	1 14	+5Vout_PC
PA1	2 15	PB1
PA2	3 16	PB2
GND	4 17	GND
PA3	5 18	PB3
PA4	6 19	PB4
GND	7 20	GND
+5Vout_PC	8 21	+5Vout_PC
IO0	9 22	IO1
IO2	10 23	IO3
IO4	11 24	IO5
IO6	12 25	IO7
GND	13	

## Software Support

### ►PC OS Support

WinXP, Win7 and later or Linux O.S.  
Embedded XP, Win CE (at request)

### ►Library

DLLs, VI library

### ►Develop Software

Visual C++, Visual Basic,  
Borland C/C++ Builder, LabVIEW etc

### ►Example Source Code

Visual Basic

## Ordering Information

- **MPC3028A** : 8-axis Motion Control Card for Servo/Stepping Motor Control (include SM23404)
- **ADP3024DIN(N)** : DIN rail mounted wiring board matched MPC3024A/3028A/3034A/3035A/AL, General output : 8 NMOS P.19
- **ADP3024DIN(P)** : DIN rail mounted wiring board matched MPC3024A/3028A/3034A/3035A/AL, General output : 8 PMOS P.19
- **ADP3024DIN(R)** : DIN rail mounted wiring board matched MPC3024A/3028A/3034A/3035A/AL, General output : 8 Relay P.19
- **M266868151** : 68-pin mini-SCSI cable 1.5 M for JF1/JF2/JF5/JF6 I.18
- **M2668683011** : 68-pin mini-SCSI cable 3.0 M for JF1/JF2/JF5/JF6 I.18
- **Note** : Two axes control signals granted in one cable.
- **JS51050** : DIN rail mounted dummy wiring board (D type 25P male to terminals) for JM3 I.12
- **M270325X4** : D type 25P male-female cable 1.5M for JM3 I.17
- **M270325X4S** : D type 25P male-female cable 1.5M, shielding for JM3 I.17
- **M270325X0** : D type 25P male-female cable 3.0M for JM3 I.17
- **M270325X0S** : D type 25P male-female cable 3.0M, shielding for JM3 I.17
- **ADP9201DIN(R)** : DIN rail mounted wiring board with 16 I/O LED indicators and Relay output for 8 DI, 8 DO for ADP9201\_JM1 P.79
- **ADP9201DIN(P)** : DIN rail mounted wiring board with 16 I/O LED indicators and PMOS output for 8 DI, 8 DO for ADP9201\_JM1 P.79
- **ADP9201DIN(S)** : DIN rail mounted wiring board with 16 I/O LED indicators and SSR output for 8 DI, 8 DO for ADP9201\_JM1 P.79
- **M23207** : 20-pin flat cable 1.5M for ADP9201\_JM1 I.17
- **M23209** : 20-pin flat cable 3.0M for ADP9201\_JM1 I.17
- **FVC01** : Frequency to voltage module P.23
- **SM23404** : Extension kit for JM3 (bracket and flat cable for 25P female D type connector)