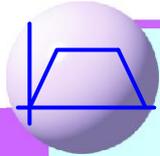




Bridging the Gap between Real World and Computer



MPC3024A

4-axis Motion Control Card (Servo/Stepping Motor Control)



Features

- ▶ 4-axis servo / stepping motor control
- ▶ 4 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
- ▶ 2~4 axes linear interpolation
- ▶ Any 2-axes circular interpolation
- ▶ 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 TTL I/O

Introduction

MPC3024A is a new version of MPC3024 with closed loop option MPC3024AC. The functions of basic type MPC3024A are compatible with MPC3024. All the motion functions such as: point to point, linear and circular interpolation, speed control gives users a friendly and economical solution to motion control application.

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

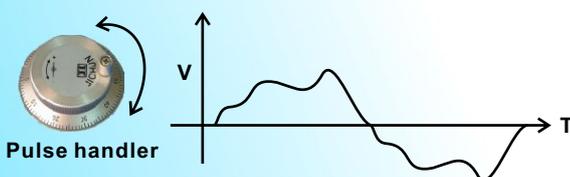
Linear and circular interpolations are standard functions. Backlash compensation for accurate position. Speed change on the fly, 4 28-bit counters for feedback and 4 28-bit counters for pulse handler input give the maximum extend of motion control.

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, 2 extra nibble configurable TTL IO for general purpose application.

Application Tips

- ▶ Manual speed and positioning using pulse handler



Related formula :

1. Distance = $\int v dt = \text{pulse no input} * \text{multiple rate}$
2. Speed = pulse handler speed * multiple rate

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 4-axes
- ▶ Circular Interpolation : any 2-axes

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

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 : 2 68-pin female mini SCSI connector
25P D type connector
- ▶ External Supply : 24Vdc \pm 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



Bridging the Gap between Real World and Computer

Pin Assignments

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

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	

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

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

- ▶ **MPC3024A** : 4-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 MPC302A/3028A/3034A/3035A/AL, General output : 8 Relays P.19
- ▶ **M266868151** : 68-pin mini-SCSI cable 1.5 M for JF1/JF2 I.18
- ▶ **M2668683011** : 68-pin mini-SCSI cable 3.0 M for JF1/JF2 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
- ▶ **FVC01** : Frequency to voltage module P.23
- ▶ **SM23404** : Extension kit for JM3 (bracket and flat cable for 25P female D type connector)