

MPC3028A

8-Axis Motion Control Card

User's Manual (V1.0)

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Correction record

Version	Record
1.0	MPC3028A compatible with old version MPC3028

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Notes on hardware installation

Please follow step by step as you are installing the control cards.

1. Be sure your system is power off.
2. Be sure your external power supply for the wiring board is power off.
3. Plug your control card in slot, and make sure the golden fingers are put in right contacts.
4. Fasten the screw to fix the card.
5. Connect the cable between the card and wiring board.
6. Connect the external power supply for the wiring board.
7. Recheck everything is OK before system power on.
8. External power on.

Congratulation! You have it.

For more detail of step by step installation guide, please refer the file “installation.pdf “ on the CD come with the product or register as a member of our user’s club at:

<http://automation.com.tw/>

to download the complementary documents.

1. **Forward**

Thank you for your selection of 8-axis motion control card. This card adopt the ASIC chip with complex motion functions including point to point, linear and circular interpolation, linear and s-curve acceleration/deceleration and several miscellaneous functions. Dll's of various functions will save you a lot of time in the motion related projects.

Our other motion control products:

- MPC3024A 4 axes linear/circular/point to point (standard function) motion control card (PCI bus)
- MPC3024AC 4-axis linear/circular/point to point (standard function) motion control card with Pulse referenced PI closed loop control (PCI bus)
- MPC3034A 4 axes linear/circular/point to point (advanced function) motion control card (PCI bus)
- MPC3042A 2 axes linear/circular/point to point (standard function) motion control card with Pulse Referenced PI Control (PCI bus)
- MPC3042AL 2 axes linear/circular/point to point (standard function) motion control card (PCI bus)
- MPC3035A 4 axes linear/circular/point to point (standard function) motion control card with advanced encoder counter function / with 2 8bit DA's motion control card (PCI bus)
- MPC3035AL 4 axes linear/circular/point to point (standard function) motion control card with advanced encoder counter function motion control card (PCI bus)

Any comment is welcome,
please visit our website

<http://www.automation.com.tw/>

<http://www.automation-js.com/> for the up to date information.

2. Features

2.1 Main card

- 2.1.1 8-axis servo/stepping motor control
- 2.1.2 8 28-bit up/down counter for incremental encoder
- 2.1.3 4 28-bit up/down counter for pulse handler input
- 2.1.4 Pulse output rate up to 6.55MHz
- 2.1.5 Pulse output options : OUT/DIR,CW/CCW
- 2.1.6 2~8 axes linear interpolation
- 2.1.7 Circular interpolation of the same chip: any 2 axes
- 2.1.8 S curve or T curve acceleration / deceleration in interpolation and positioning
- 2.1.9 Continuous interpolation
- 2.1.10 Speed change on the fly
- 2.1.11 Synchronized start motion
- 2.1.12 Position latch function
- 2.1.13 Simultaneously start/stop on multi-axes
- 2.1.14 Programmable interrupt conditions
- 2.1.15 Backlash compensation
- 2.1.16 Pulse handler function
- 2.1.17 Software limit switches protection
- 2.1.18 2 nibble configurable TTL I/O
- 2.1.19 Motion parameters change on the fly
- 2.1.20 8 isolated digital I/P
- 2.1.21 8 isolated digital O/P

2.2 Din rail mounted wiring board

- 2.2.1 JS51050 dummy wiring board for JM3 pulse handler interface
- 2.2.2 ADP3024DIN wiring board for JF1,2,5,6 motion control interface
- 2.2.3 ADP9201DIN for JM6 isolated digital I/O interface

3. Specifications

3.1 MPC3028A Main card

Motion

- 3.1.1 Max pulse rate — 6,553,500 pps
- 3.1.2 Pulse output mode — Single phase: CLOCK,DIR
- 3.1.3 Dual phase — CW, CCW
- 3.1.4 Acceleration / Deceleration mode — linear ,S-curve mode
- 3.1.5 Homing mode — 14 types
- 3.1.6 Encoder up/down counter — 8 28bit counter
- 3.1.7 Pulse Handle up/down counter — 4 28 bit counter
- 3.1.8 Linear interpolation — any 2 up to 4 axis (of the same chip)
- 3.1.9 Circular interpolation — any 2 axes (of the same chip)

Digital I/O

- 3.1.10 Motion specific input — SRDY, ALM, LS+(EL+), LS-(EL-), SD, HOME(ORG), PCS, LTC per axis , EMG per card
- 3.1.11 Motion specific output — CMP,SVON,ERC,FIN per axis
- 3.1.12 General input — INP per axis
- 3.1.13 TTL I/O — 2 nibble configurable TTL I/O
- 3.1.14 Isolated I/O — 8I/P, 8 O/P

General

- 3.1.15 Card ID — 16 locations set by rotary switch
- 3.1.16 Insulation resistance — 100 M Ω (min) at 1000Vdc
- 3.1.17 Isolation voltage — 2500Vac 1Min
- 3.1.18 I/O connector — 4 68pin female mini SCSI connector
1 20 pin flat cable
1 25 pin D type connector
- 3.1.19 External supply — DC 24 \pm 4V
- 3.1.20 Operation temperature — 0 to 70° C
- 3.1.21 Storage temperature — -20 to 80° C
- 3.1.22 Operation humidity — 5~95% RH, non-condensing
- 3.1.23 Dimensions — 175(W) * 122(H) mm , 6.9(W)*4.8(H)in

3.2 Din rail mounted wiring board

ADP3024DIN for JF1,2,5,6 motion control interface

- 3.2.1 Power Requirement — 24Vdc \pm 4Vdc
- 3.2.2 On Board Build-in s.p.s. — +5Vdc 500mA (max)
- 3.2.3 General input — 4 with LED indicator
- 3.2.4 Output capacity — 8 NMOS output, 1A continuous \cdot 120Vdc(max)
Option : 8 PMOS output, 1A continuous \cdot 24Vdc(max)
Option : 8 Relay output, 3A continuous \cdot 250Vac(max)
- 3.2.5 Connector — 2 68pin mini SCSI female connector for main card connection
- 3.2.6 Specific servo control connectors — 4 D-type 26p (1 per axis)
- 3.2.7 Operation temperature — 0 to 70° C
- 3.2.8 Operation humidity — RH5~95%, non-condensed
- 3.2.9 Dimension — ADP3024DIN(N) : 121(W) * 204(L) *47(H)mm;
4.8(W)*8.1(L)*1.9(H)in
ADP3024DIN(P) / (R) : 121(W) * 204(L) *45(H)mm
4.8(W)*8.1(L)*1.8(H)in

JS51050 for JM3 pulse handler interface

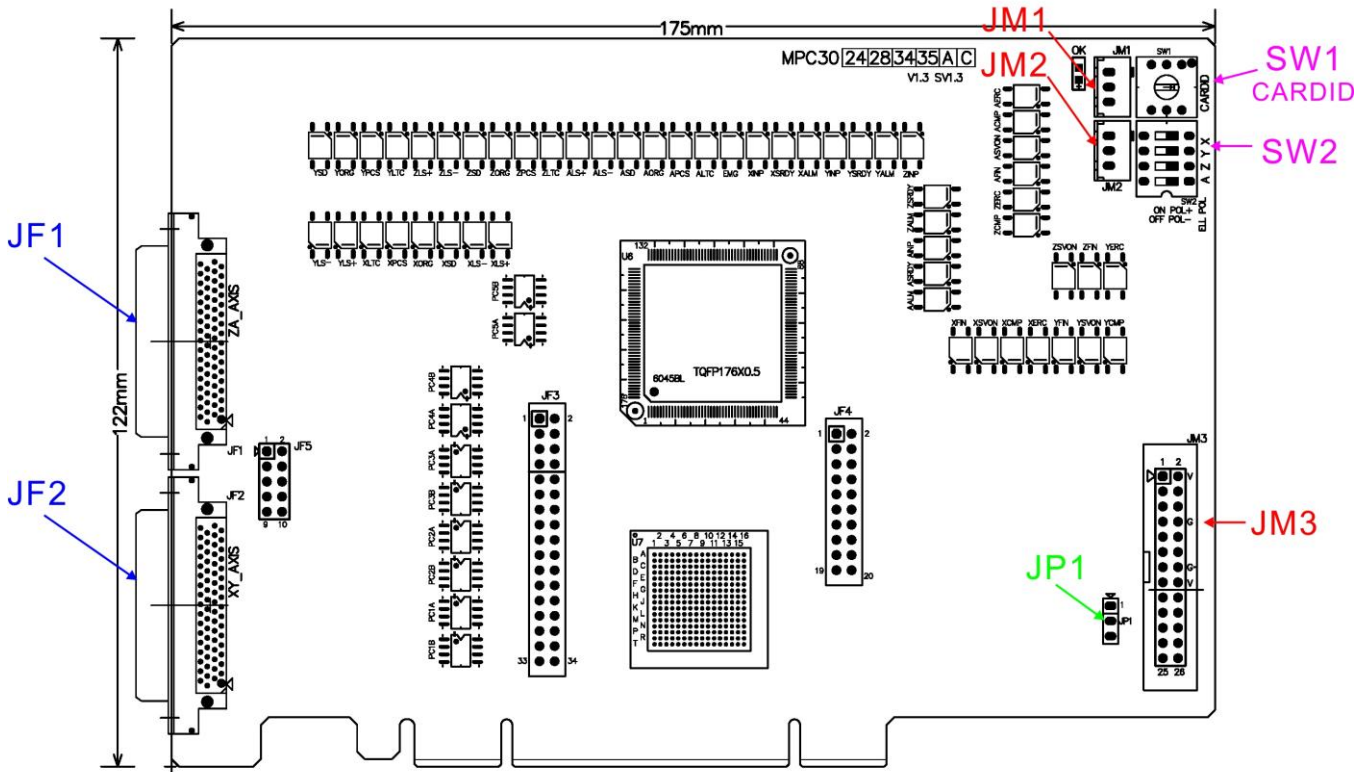
- 3.2.10 Connection cable — D-type 25P cable to connect main and wiring board
- 3.2.11 Dimension — 86(W)*79(L)*52(H)mm , 3.4(W)*3.2(L)*2.1(H)in

ADP9201DIN for JM6 isolated digital I/O

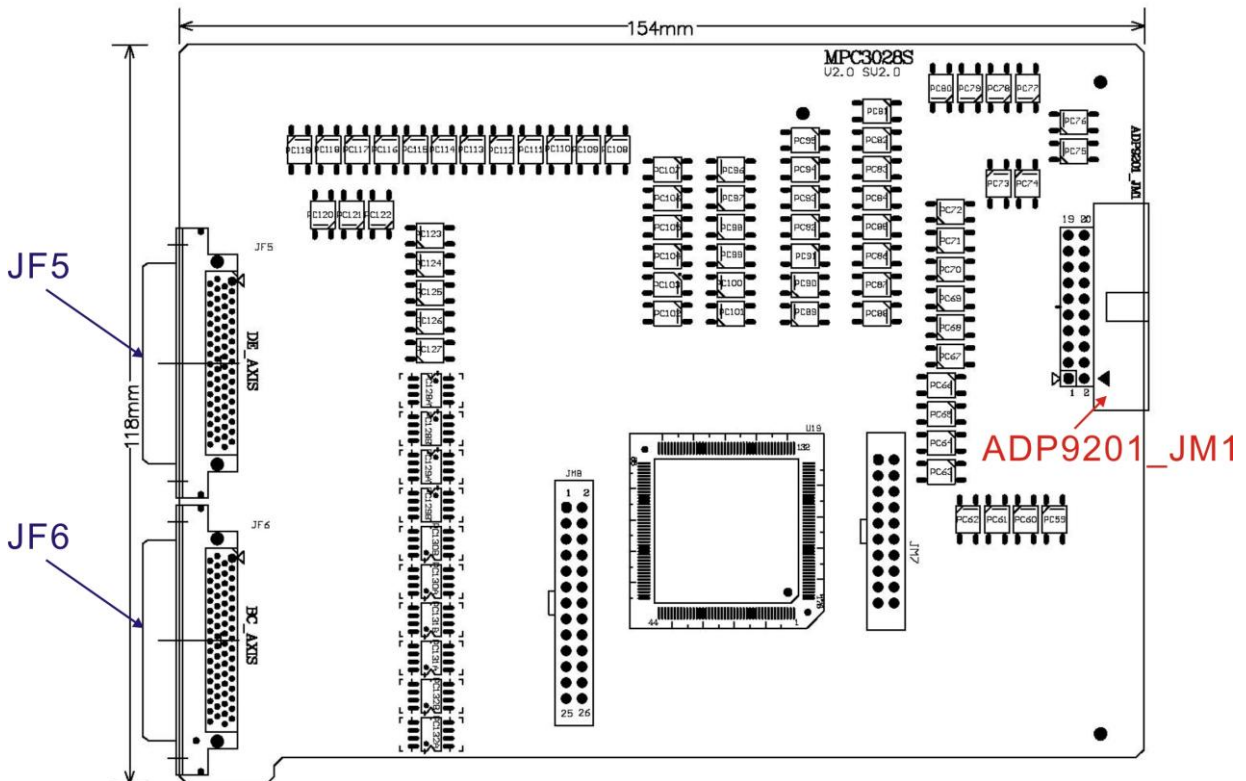
- 3.2.12 Power Requirement — 24Vdc \pm 4Vdc
- 3.2.13 Indicator — 8 input and 8 output LED indicators
- 3.2.14 Output capacity — 8 relay output, 3A @250Vac , 3A @30Vdc
Option : 8 PMOS output, 1A @24Vdc
Option : 8 SSR output, 2A@250Vac
- 3.2.15 Connector — 20pin
- 3.2.16 Operation temperature — 0 to 70° C
- 3.2.17 Operation humidity — RH5~95%, non-condensed
- 3.2.18 Dimension — ADP9201DIN(R) / (P) : 86(W) * 103(L) *45(H)mm;
3.4(W)*4.1(L)*1.8(H)in
ADP9201DIN(S) : 86(W) * 103(L) *50(H)mm
3.4(W)*4.1(L)*2.0(H)in

4. Layout and dimension

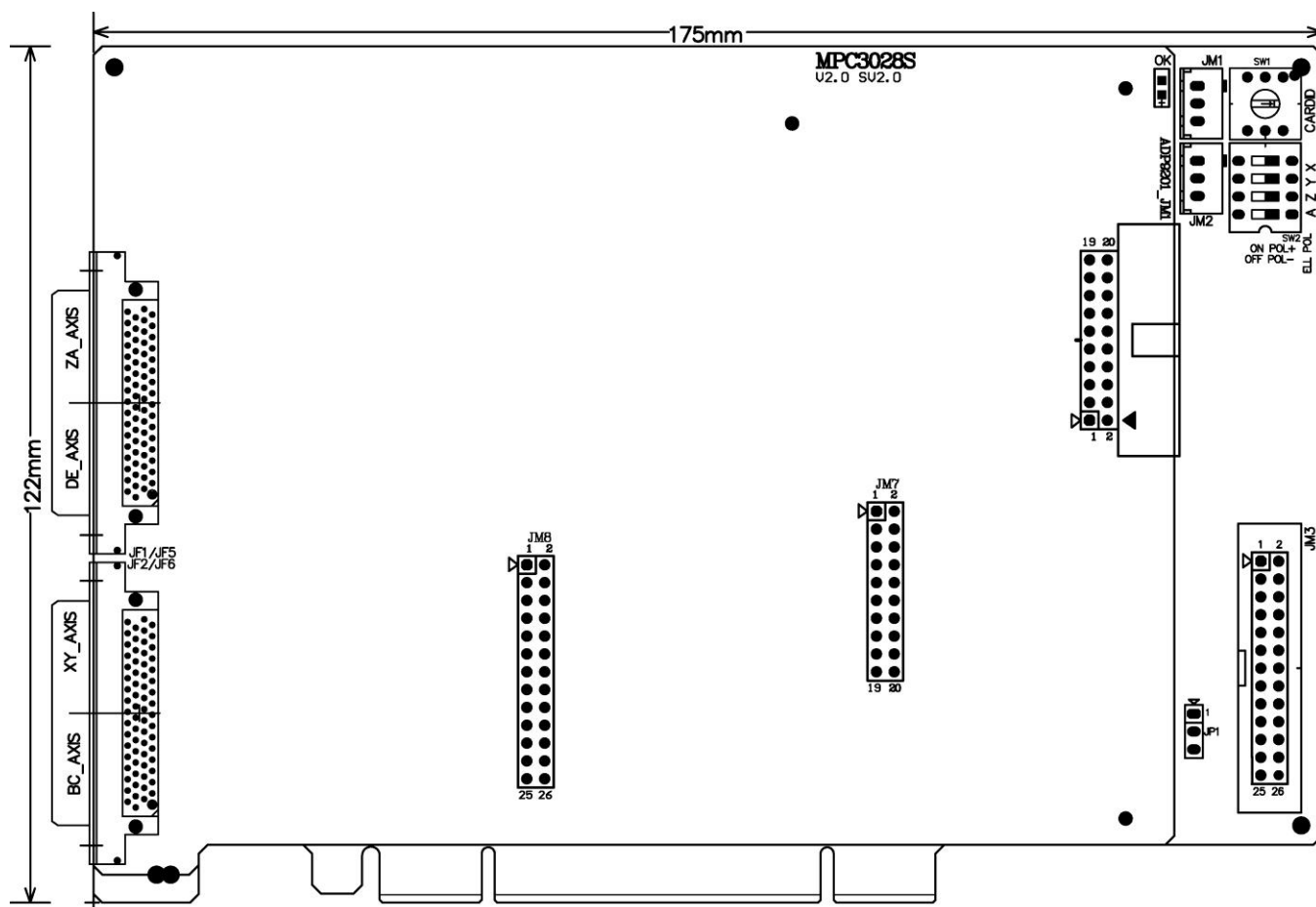
4.1 MPC3028A Main card



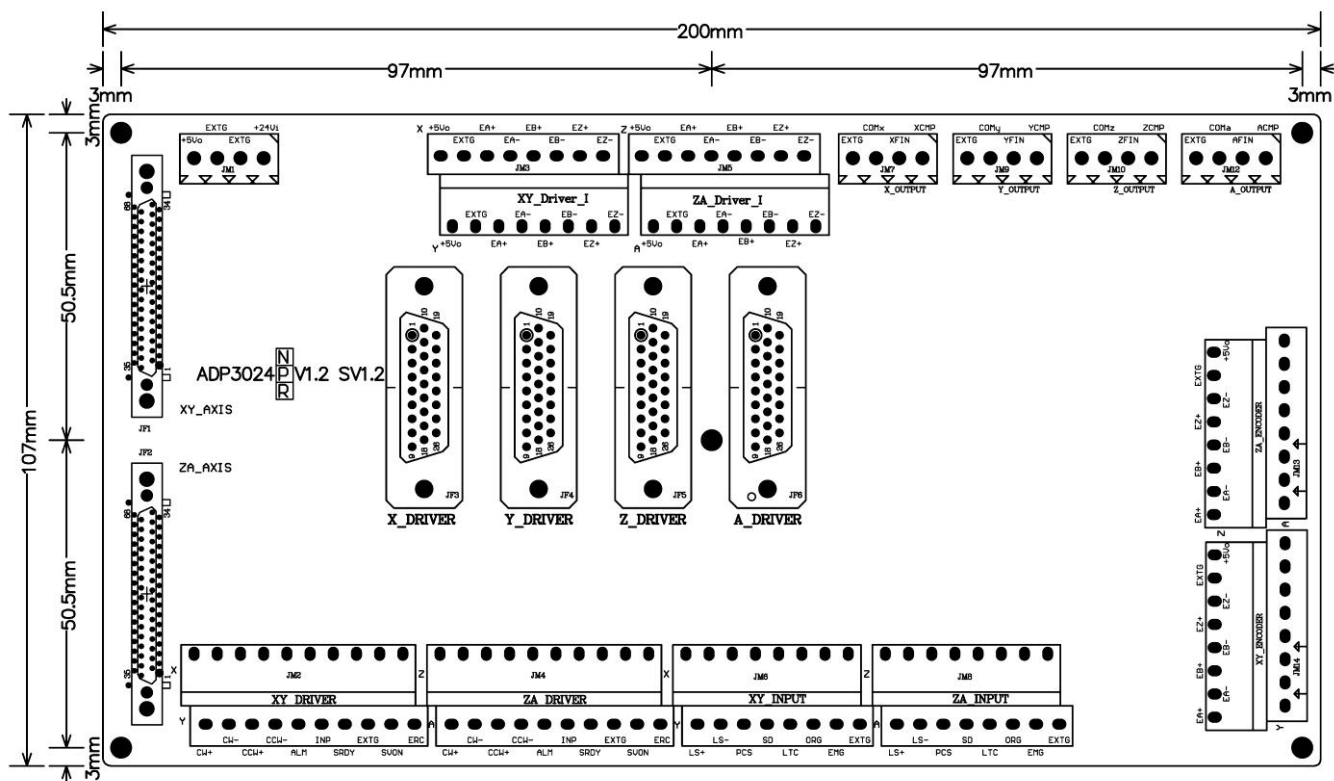
4.2 MPC3028A daughter card



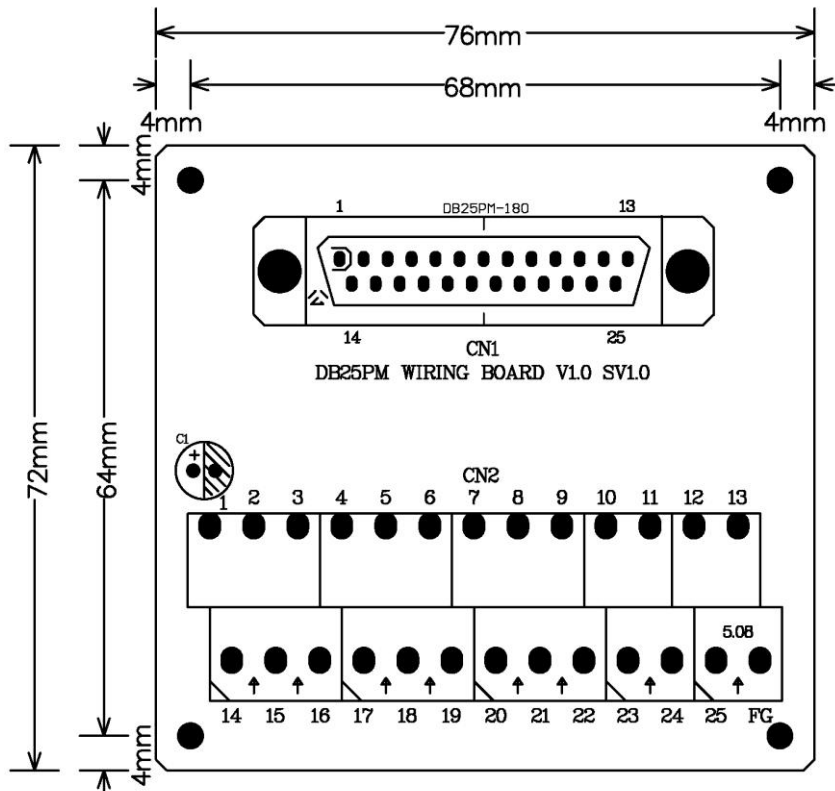
4.3 MPC3028A piggy back



4.4 ADP3024DIN for JF1,2,5,6 Din rail mounted wiring board



4.5 JS51050 for JM3 25PM Din rail mounted dummy wiring board



4.6 ADP9201DIN for ADP9201_JM1 Din rail mounted wiring board

