

DIO8264

Digital I/O Card

User's Manual (V1.0)

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Correction record

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V1.0	New

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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.

Warning:

Some computer BIOS has “Auto detect DIMM/PCI clock” option, be sure to switch to “DISABLE” else in some cases the PCI add on cards will not be detected by windows at cold start.

1. Forward

Thank you for your selection of JAC's product DIO8264 64 inputs DIGITAL I/O card for industrial PC. In the field of industrial control, digital I/O is generally controlled under a microprocessor and owing to their specific consideration of industrial environment, it is quite different from the laboratory requirement.

Our experience in the noise immunity makes this card very stable in the noisy environment and you don't worry about computer down by external noise. We wish the card that will be helpful to your project.

Other DIO series products:

DIO9201 16 channel input and 16 channel output isolated digital I/O card (ISA bus)

DIO3206 48 channel TTL digital I/O Card (PCI bus)

DIO3208B 8 channel input and 8 channel relay output isolated digital I/O card (PCI bus)

DIO3216B 16 channel input and 16 channel output isolated digital I/O card (PCI bus)

DIO3217 16 channel input and 16 channel output isolated digital I/O card (PCI bus)
with multifunction timer/counter

DIO3232A/B 32 channel input and 32 channel output isolated digital I/O card (PCI bus)

DIO3248A/B 48 channel input and 16 channel output isolated digital I/O card (PCI bus)

DIO3264A/B 64 channel input isolated digital I/O card (PCI bus)

DIO3265 64 channel output isolated digital I/O card (PCI bus)

DIO8216 16 channel input and 16 channel output isolated digital I/O card (PCIe bus)

DIO8217 16 channel input and 16 channel output isolated digital I/O card (PCIe bus)
with multifunction timer/counter

DIO8232 32 channel input and 32 channel output isolated digital I/O card (PCIe bus)

DIO8265 64 channel output isolated digital I/O card (PCIe bus)

DIO4264 64 TTL digital I/O (PC-104 Module)

DIO6208 8 channel input and 8 channel relay output isolated digital I/O (PCI-104 Module)

DIO6216 16 channel input and 16 channel relay output isolated digital I/O (PCI-104 Module)

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 PCIe plug and play function with card ID for 16 identical cards
- 2.1.2 64 isolated DI channels
- 2.1.3 High voltage isolation on all isolated channel (2500 Vac)
- 2.1.4 Programmable debounce at 50,100,200, 1K Hz and no de-bounce for input
- 2.1.5 External triggered interrupt (on IN07~IN00 and TTL IO07~IO00)
- 2.1.6 Input counter / frequency counter (on IN07~IN00 and TTL IO07~IO00)
- 2.1.7 Keep output state after hot reset (jumper selectable)
- 2.1.8 32bit timer with time up interrupt

2.2 DIN rail mounted wiring board

- 2.2.1 LEDs for corresponding status indication
- 2.2.2 8 digits per I/O group with Green LED at first digit

3. Specifications

3.1 DIO8264 Main card

Input Section

- 3.1.1 Input : 64 photo-isolated
- 3.1.2 ON state : 8Vdc(max), 4mA(min)
- 3.1.3 OFF state : 12Vdc(min), 3mA(max)
- 3.1.4 Software debounce : No debounce, 50Hz, 100Hz, 200Hz, 1KHz
- 3.1.5 Switching speed : 10KHz max. (limit by photo coupler speed and debounce filter)
- 3.1.6 Interrupt : at IN07 ~ IN00, TTL IO07~IO00
- 3.1.7 Counter/frequency counter : 16 bit at IN07~IN00, TTL IO07~IO00

TTL IO

- 3.1.8 Port : 2
- 3.1.9 Direction : software programmable on port base
- 3.1.10 Software debounce : No debounce, up to 8MHz

Timer

- 3.1.11 Length : 32 bit @1us
- 3.1.12 Interrupt : time up interrupt

Main Card General

- 3.1.13 Card ID : 4 bits
- 3.1.14 Insulation resistance : 100M Ohm (min) at 1000Vdc
- 3.1.15 Isolation voltage : 2500Vac 1Min
- 3.1.16 Connector : Centronic type SCSI II 68pin connector
- 3.1.17 Operation temperature : 0 to +70 degree C
- 3.1.18 Storage temperature : -20 to +80 degree C
- 3.1.19 Operation humidity : 5~95% RH, non-condensing
- 3.1.20 Dimensions : 165(W) * 110(H) mm , 6.5(W) * 4.4(H)in

3.2 DIN rail mounted wiring board

ADP8264DIN DIN rail mounted wiring board

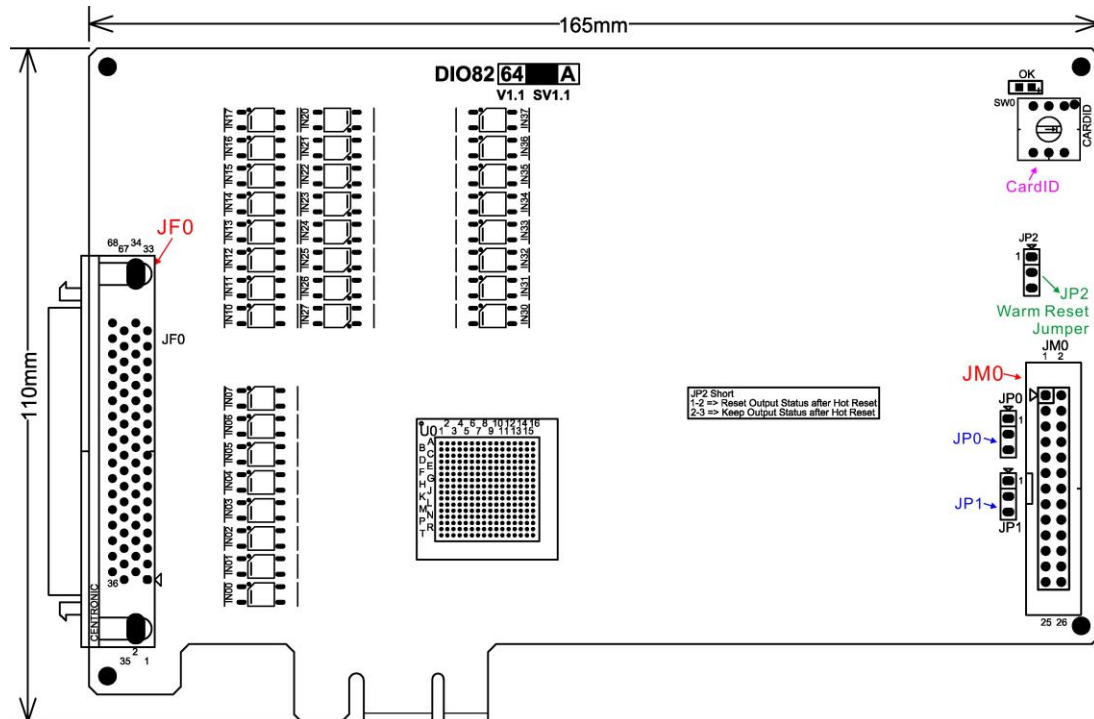
- 3.2.1 External supply : DC 24V±4V
- 3.2.2 Input status indicator : 64 LED, 8 digit per group with Green LED at first digit
- 3.2.3 Power indicator : Red LED
- 3.2.4 Terminal : every 4 has one common terminal.
(Different “common” for different positive power terminal)
- 3.2.5 Operation temperature : 0 to 70° C
- 3.2.6 Operation humidity : RH5~95%, non-condensed
- 3.2.7 Dimension : 121(W) * 159(L) * 45(H)mm
4.8(W) * 6.3(L) * 1.8(H)in

JS51050 25PM DIN rail mounted dummy wiring board for TTL I/O

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

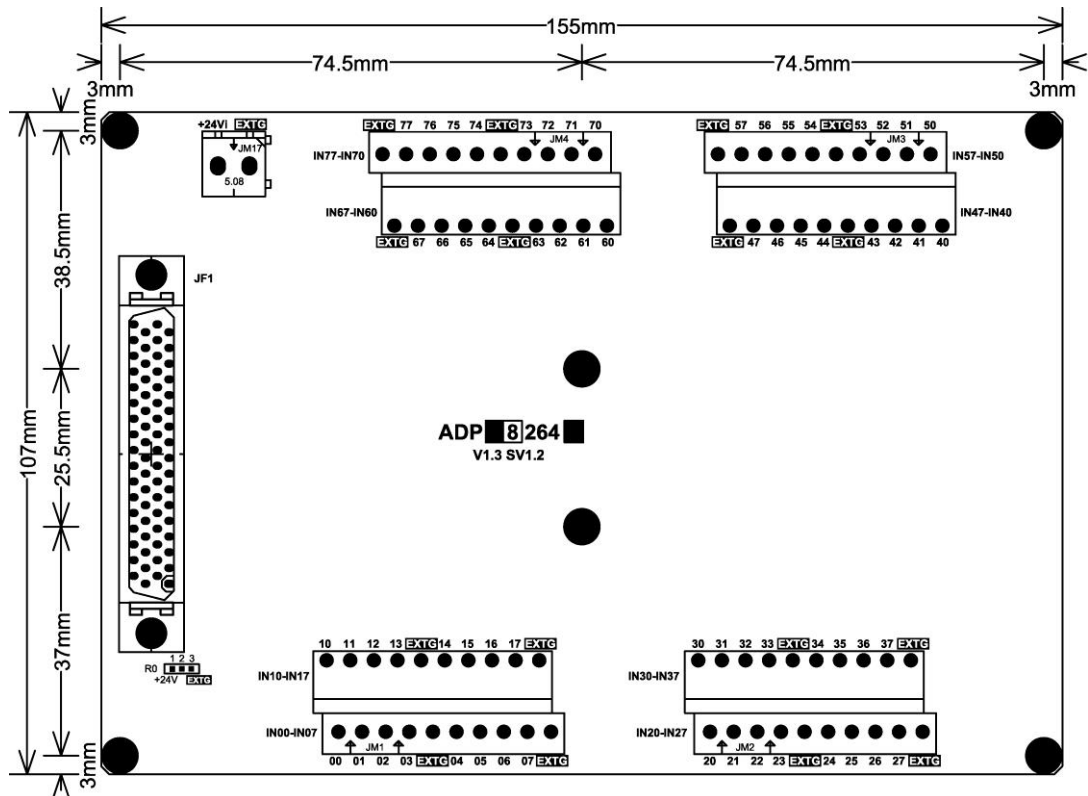
4. Layout and dimensions

4.1 DIO8264 Main card



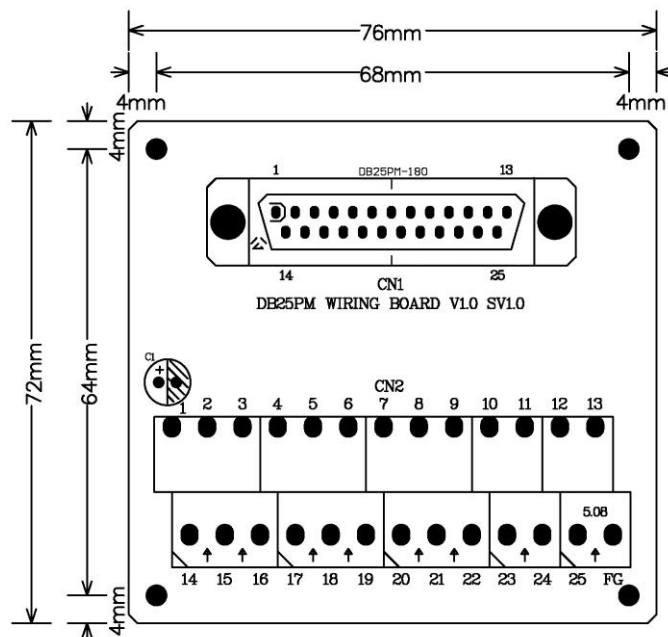
*dimension in bare board

4.2 ADP8264DIN Din rail mounted wiring board



*dimension in bare board

4.3 JS51050 for JM0 25PM Din rail mounted dummy wiring board



*dimension in bare board

5. PIN definitions

5.1 Pin definitions for DIO8264_JF0 connector

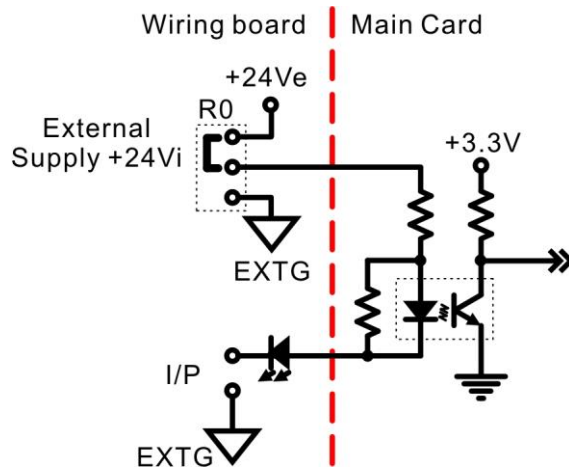
PIN	Descriptions		PIN	Descriptions
68	+24V[External DC24V power]		34	+24V[External DC24V power]
67	IN77[Port7 bit7 input]	+24Vin 68 34 +24Vin	33	IN76[Port7 bit6 input]
66	IN75[Port7 bit5 input]	IN77 67 33 IN76	32	IN74[Port7 bit4 input]
65	IN73[Port7 bit3 input]	IN75 66 32 IN74	31	IN72[Port7 bit2 input]
64	IN71[Port7 bit1 input]	IN73 65 31 IN72	30	IN70[Port7 bit0 input]
63	IN67[Port6 bit7 input]	IN71 64 30 IN70	29	IN66[Port6 bit6 input]
62	IN65[Port6 bit5 input]	IN67 63 29 IN66	28	IN64[Port6 bit4 input]
61	IN63[Port6 bit3 input]	IN65 62 28 IN64	27	IN62[Port6 bit2 input]
60	IN61[Port6 bit1 input]	IN63 61 27 IN62	26	IN60[Port6 bit0 input]
59	IN57[Port5 bit7 input]	IN61 60 26 IN60	25	IN56[Port5 bit6 input]
58	IN55[Port5 bit5 input]	IN57 59 25 IN56	24	IN54[Port5 bit4 input]
57	IN53[Port5 bit3 input]	IN55 58 24 IN54	23	IN52[Port5 bit2 input]
56	IN51[Port5 bit1 input]	IN53 57 23 IN52	22	IN50[Port5 bit0 input]
55	IN47[Port4 bit7 input]	IN51 56 22 IN50	21	IN46[Port4 bit6 input]
54	IN45[Port4 bit5 input]	IN47 55 21 IN46	20	IN44[Port4 bit4 input]
53	IN43[Port4 bit3 input]	IN45 54 20 IN44	19	IN42[Port4 bit2 input]
52	IN41[Port4 bit1 input]	IN43 53 19 IN42	18	IN40[Port4 bit0 input]
51	IN37[Port3 bit7 input]	IN41 52 18 IN40	17	IN36[Port3 bit6 input]
50	IN35[Port3 bit5 input]	IN37 51 17 IN36	16	IN34[Port3 bit4 input]
49	IN33[Port3 bit3 input]	IN35 50 16 IN34	15	IN32[Port3 bit2 input]
48	IN31[Port3 bit1 input]	IN33 49 15 IN32	14	IN30[Port3 bit0 input]
47	IN27[Port2 bit7 input]	IN31 48 14 IN30	13	IN26[Port2 bit6 input]
46	IN25[Port2 bit5 input]	IN27 47 13 IN26	12	IN24[Port2 bit4 input]
45	IN23[Port2 bit3 input]	IN25 46 12 IN24	11	IN22[Port2 bit2 input]
44	IN21[Port2 bit1 input]	IN23 45 11 IN22	10	IN20[Port2 bit0 input]
43	IN17[Port1 bit7 input]	IN21 44 10 IN20	9	IN16[Port1 bit6 input]
42	IN15[Port1 bit5 input]	IN17 43 9 IN16	8	IN14[Port1 bit4 input]
41	IN13[Port1 bit3 input]	IN15 42 8 IN14	7	IN12[Port1 bit2 input]
40	IN11[Port1 bit1 input]	IN13 41 7 IN12	6	IN10[Port1 bit0 input]
39	IN07[Port0 bit7 input]	IN11 40 6 IN10	5	IN06[Port0 bit6 input]
38	IN05[Port0 bit5 input]	IN07 39 5 IN06	4	IN04[Port0 bit4 input]
37	IN03[Port0 bit3 input]	IN05 38 4 IN04	3	IN02[Port0 bit2 input]
36	IN01[Port0 bit1 input]	IN03 37 3 IN02	2	IN00[Port0 bit0 input]
35	+24V[External DC24V power]	IN01 36 2 IN00	1	+24V[External DC24V power]

5.2 Pin definitions for DIO8264_JM0 connector

PIN	Description			PIN	Description
1	IO00: TTL port0 IO0	IO00	1	IO10	IO10: TTL port1 IO0
2	IO01: TTL port0 IO1	IO01	2	IO11	IO11: TTL port1 IO1
3	IO02: TTL port0 IO2	IO02	3	IO12	IO12: TTL port1 IO2
4	IO03: TTL port0 IO3	IO03	4	IO13	IO13: TTL port1 IO3
5	IO04: TTL port0 IO4	IO04	5	IO14	IO14: TTL port1 IO4
6	IO05: TTL port0 IO5	IO05	6	IO15	IO15: TTL port1 IO5
7	IO06: TTL port0 IO6	IO06	7	IO16	IO16: TTL port1 IO6
8	IO07: TTL port0 IO7	IO07	8	IO17	IO17: TTL port1 IO7
9	GND	GND	9	GND	
10	GND	GND	10	GND	
11	GND	GND	11	GND	
12	+5Vout_PC: 5V out from PC	+5Vout_PC	12	+5Vout_PC	
13	+5Vout_PC: 5V out from PC	+5Vout_PC	13	+5Vout_PC	
			14		
			15		
			16		
			17		
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			23		
			24		
			25		

6. I/O interface diagram

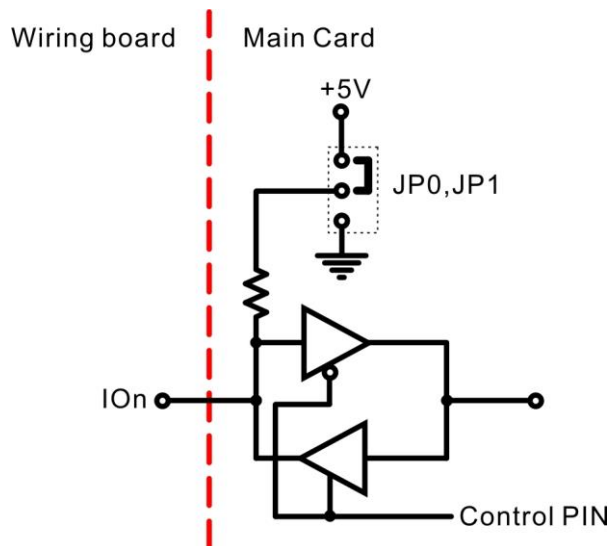
6.1 Input diagram



Note: The wiring board always use R0 to short the photo coupler to external supply +24Vi

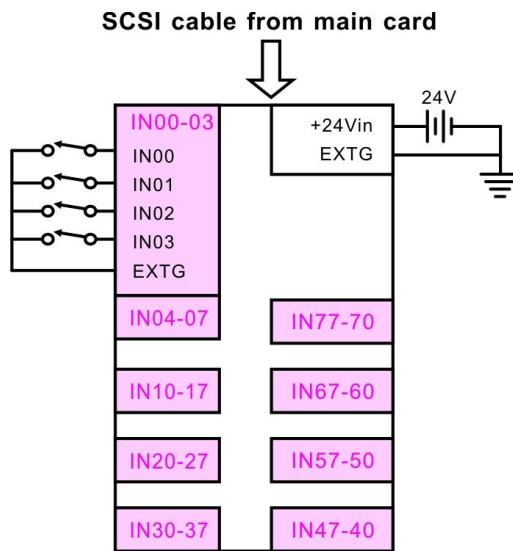
Note: The indicator LED is in series with the input terminal, if you lower the current through it to less than 3ma, the LED will still light but the computer read the input status changes state already.

6.2 TTL IO



For byte-programmable TTL I/O IO07 ~ IO00, IO17 ~ IO10 to configured as pull high or pull low. JP0,JP1 are used for output state of power on. (refer 8.2 Jumper setting)

7. External wiring diagram

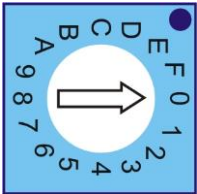


8. **Hardware settings**

8.1 CARD ID setting

Since PCIe cards have plug and play function, the card ID is required for programmer to identify which card he/she will control without knowing the physical address assigned by the Windows. A 4 bits DIP switch or rotary switch for distinguishing the 16 identical cards.
The following example sets the card ID at 12.

Example for card ID setting



Rotary switch set at ID=0

8.2 Jumper setting

JP0,JP1

	
1-2 short Pull High	2-3 short Pull Low

Jumper JP0 and JP1 is used for the TTL output default state, if you disable the TTL port or at computer start-up period, the default state will be output. Select the one to match with the succeeding circuit.

JP2

Warm reset jumper (JP2)	
	
Reset output after warm reset	Keep output after warm reset

9. Applications

- Accept : -- P.B./M.S./EMG./Contact- Start/Stop/Limit switch/sensor
-- Interlock/selective Sw.- Proximity switch
-- Aux. contact of transducer/detector
- As I/O of S/W PLC Controller
- Industrial ON/OFF control
- Low speed counter
- Frequency counter
- Hardware event capture

10. Ordering information

<u>PRODUCT</u>	<u>DESCRIPTIONS</u>
DIO8264	64-channel Digital I/O Card for 64 DI Photo-coupler isolated
ADP8264DIN	DIN rail mounted wiring board for 64 Input
JS51050	DIN rail mounted dummy wiring board (D type 25P male to terminals) for JM0 TTL I/O
M26J68681M5F	68 pin SCSI II cable 1.5M
M26J68683M0F	68 pin SCSI II cable 3.0M
M270325X4	D type 25p male-female cable 1.5M
M270325X4S	D type 25p male-female cable 1.5M, shielding
M270325X0	D type 25p male-female cable 3.0M
M270325X0S	D type 25p male-female cable 3.0M, shielding
SM23404	Extension kit for JM0 (bracket and flat cable for 25P female D type connector)