DIO-3248
DIGITAL I/O CARD

USER'S MANUAL (V1.3)

健昇科技股份有限公司

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1. FORWARD

Thank you for your selection of JAC's product DIO-3248 48 inputs and 16 outputs DIGITAL I/O card for IBM compatible 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.

This card is a FPGA based design and 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.

In the wiring board , output is amplified with POWER MOS to fill different application requirements. This card may take as a upgrade of our 9000 series DIO card , and as usual it is good match to work with our other cards. Our DIO series card is your best choice.

Other DIO series products:

DIO-9201→16IN+16OUT digital I/O card (ISA bus)
DIO-2232→32IN+32OUT digital I/O card (ISA bus)
DIO-2248→48IN+16OUT digital I/O card (ISA bus)
DIO-2264→64IN digital Input card (ISA bus)
DIO-3232→32IN+32OUT digital I/O card (PCI bus)
DIO-3264→64IN digital I/O card (PCI bus)

Any comment is welcome,
please visit our website: www.automation.com.tw for the up to date information.

2. PACKING LIST

2.1	DIO-3248 main card	1
2.2	DIO-3248 DIN rail wiring board	1
2.3	SCSI Ⅱ 68 PINCABLE(1.5m)	1
2.4	Accessories	1
2.5	DEMO CD	1

3. FEATURES

3.1 PCI plug and play function with card ID for 16 identical cards
3.2 All of inputs and outputs are photo-coupler isolated
3.3 Build-in input de-bounce circuit
3.4 LEDs for corresponding status indication
3.5 8 digits per I/O group with Green LED at first digit
3.6 Power MOS output at 1A continuous ,120V DC(max).

4. SPECIFICATIONS

4.1 DIO-3248 MAIN CARD

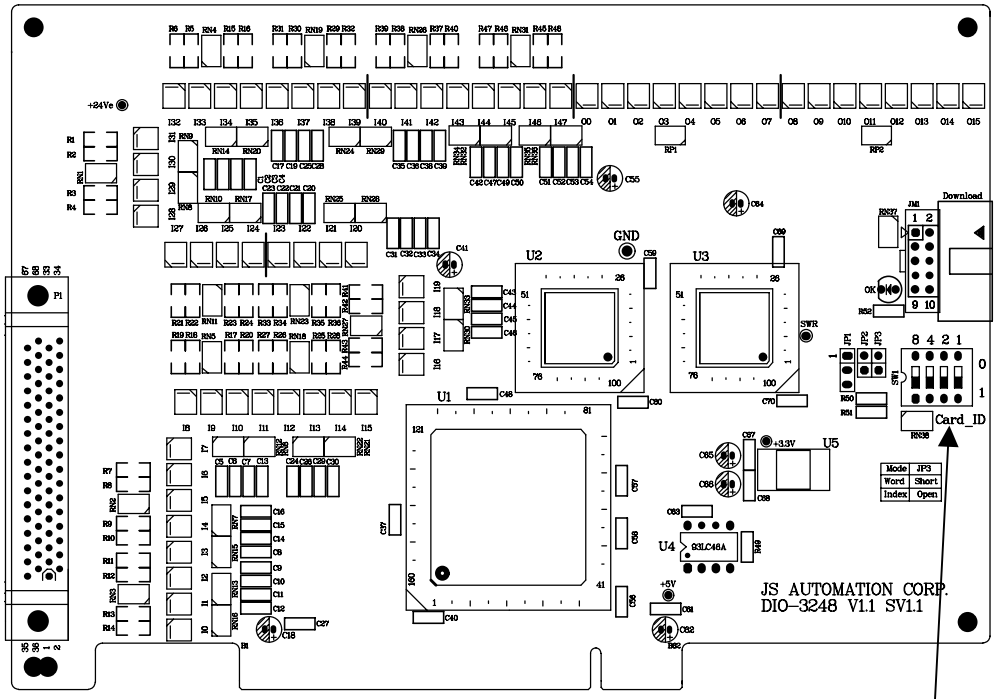
4.1.1 Input photo-coupler isolation voltage — 2500Vac 1Min
4.1.2 Insulation resistance — 100M Ohm (min) at 1000Vdc
4.1.3 PCI bus data width — 32 bits
4.1.4 Card ID — 4 bits
4.1.5 Input channel — 48 ea of ON/OFF switching
4.1.6 Output channel — 16 ea of ON/OFF switching
4.1.7 Switching speed — 2.2KHZ max. (with on board debounce circuit)
4.1.8 Input “ON” state — 2.8V(max) 4.5ma(min)
4.1.9 Input “OFF” state — 8V(min) 3ma(max)
4.1.10 I/O connector — 68 pin female mini scsi connector
4.1.11 Wiring board — 1 with round cable hook to main card
4.1.12 External supply — DC 24± 4V
4.1.13 Operation temperature — 0 to 70° C
4.1.14 Operation humidity — RH5~95%, non-condensed
4.1.15 Dimension — 176(W)*122(H)mm

4.2 DIO-3248 DIN RAIL WIRING BOARD

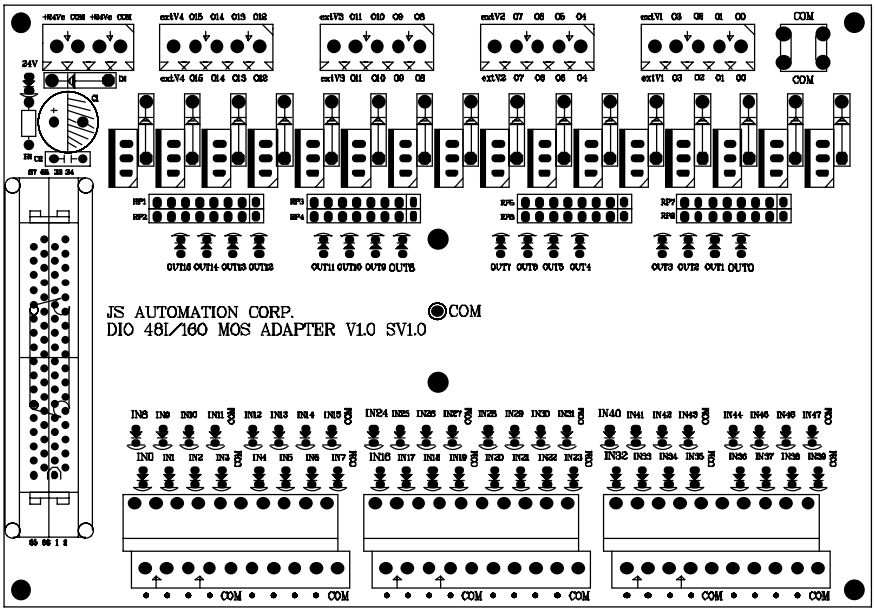
4.2.1 External supply —DC 24V± 4V
4.2.2 Input status indicator — 48LED, 8 digit per group with Green LED at first digit
4.2.3 Output status indicator — 16 LED, 8 digit per group with Green LED at first digit
4.2.4 Power indicator — Red LED
4.2.5 Output capacity —POWER MOS output, 1A continuous、120V DC (N MOS max) 、24V DC (P MOS max)
4.2.6 Operation temperature — 0 to 70° C
4.2.7 Operation humidity — RH5~95%, non-condensed
4.2.8 Dimension — 155(W)*107(H)mm

5. LAYOUT

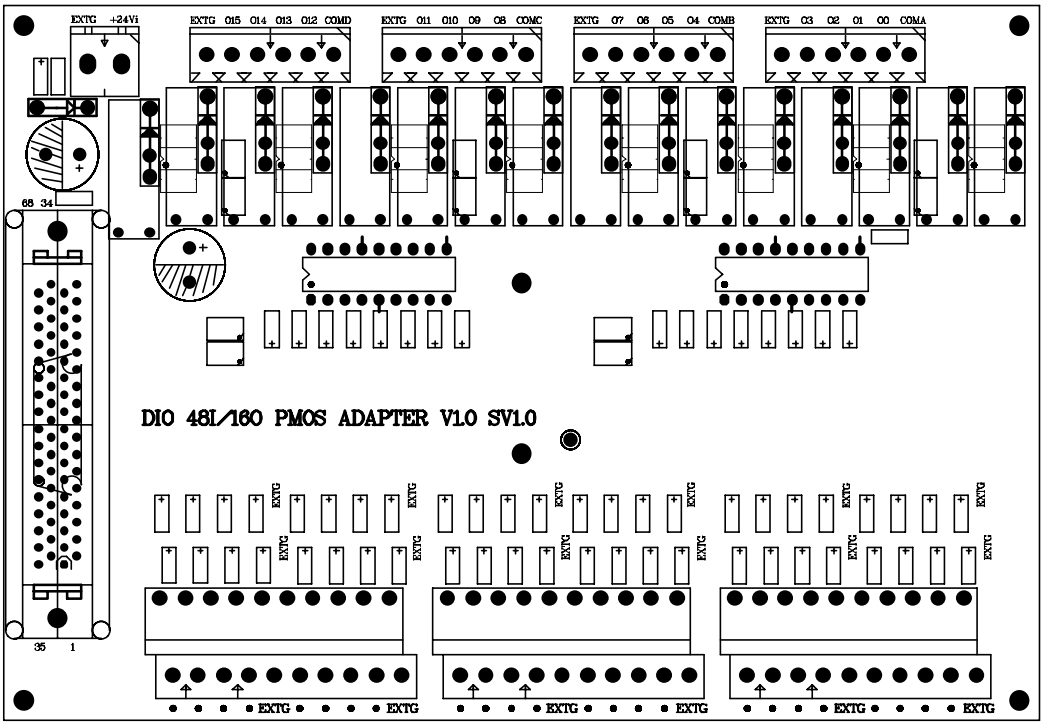
5.1 DIO-3248 MAIN CARD LAYOUT



5.2 DIO-3248 DIN RAIL WIRING BOARD LAYOUT (N MOS)

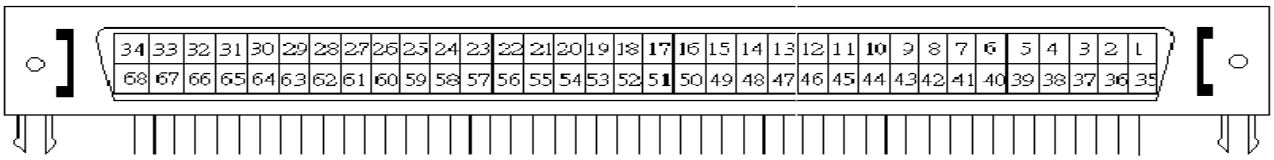


5.3 DIO-3248 DIN RAIL WIRING BOARD LAYOUT (P MOS)



6. PIN DEFINITIONS

6.1 FRONT VIEW OF CONNECTOR



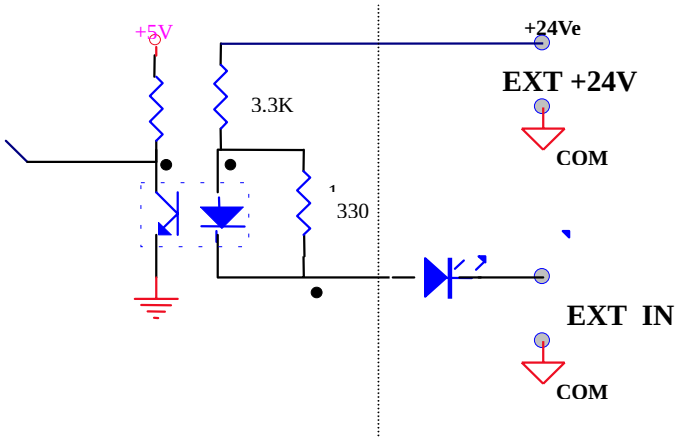
6.2 PIN DEFINITIONS

PIN	Descriptions	PIN	Descriptions
1	EXT_IN0 [External Input 0]	35	EXT_IN1 [External Input 1]
2	EXT_IN2 [External Input 2]	36	EXT_IN3 [External Input 3]
3	EXT_IN4 [External Input 4]	37	EXT_IN5 [External Input 5]
4	EXT_IN6 [External Input 6]	38	EXT_IN7 [External Input 7]
5	EXT_IN8 [External Input 8]	39	EXT_IN9 [External Input 9]
6	EXT_IN10 [External Input 10]	40	EXT_IN11 [External Input 11]
7	EXT_IN12 [External Input 12]	41	EXT_IN13 [External Input 13]
8	EXT_IN14 [External Input 14]	42	EXT_IN15 [External Input 15]
9	EXT_IN16 [External Input 16]	43	EXT_IN17 [External Input 17]
10	EXT_IN18 [External Input 18]	44	EXT_IN19 [External Input 19]
11	EXT_IN20 [External Input 20]	45	EXT_IN21 [External Input 21]
12	EXT_IN22 [External Input 22]	46	EXT_IN23 [External Input 23]
13	EXT_IN24 [External Input 24]	47	EXT_IN25 [External Input 25]
14	EXT_IN26 [External Input 26]	48	EXT_IN27 [External Input 27]
15	EXT_IN28 [External Input 28]	49	EXT_IN29 [External Input 29]
16	EXT_IN30 [External Input 30]	50	EXT_IN31 [External Input 31]
17	EXT_IN32 [External Input 32]	51	EXT_IN33 [External Input 33]
18	EXT_IN34 [External Input 34]	52	EXT_IN35 [External Input 35]
19	EXT_IN36 [External Input 36]	53	EXT_IN37 [External Input 37]
20	EXT_IN38 [External Input 38]	54	EXT_IN39 [External Input 39]
21	EXT_IN40 [External Input 40]	55	EXT_IN41 [External Input 41]
22	EXT_IN42 [External Input 42]	56	EXT_IN43 [External Input 43]
23	EXT_IN44 [External Input 44]	57	EXT_IN45 [External Input 45]
24	EXT_IN46 [External Input 46]	58	EXT_IN47 [External Input 47]
25	EXT_OUT0 [External Output 0]	59	EXT_OUT1 [External Output 1]
26	EXT_OUT2 [External Output 2]	60	EXT_OUT3 [External Output 3]
27	EXT_OUT4 [External Output 4]	61	EXT_OUT5 [External Output 5]
28	EXT_OUT6 [External Output 6]	62	EXT_OUT7 [External Output 7]
29	EXT_OUT8 [External Output 8]	63	EXT_OUT9 [External Output 9]
30	EXT_OUT10 [External Output 10]	64	EXT_OUT11 [External Output 11]
31	EXT_OUT12 [External Output 12]	65	EXT_OUT13 [External Output 13]
32	EXT_OUT14 [External Output 14]	66	EXT_OUT15 [External Output 15]
33	+24V [External DC24V power]	67	+24V [External DC24V power]
34	+24V [External DC24V power]	68	+24V [External DC24V power]

7. I/O INTERFACE DIAGRAM

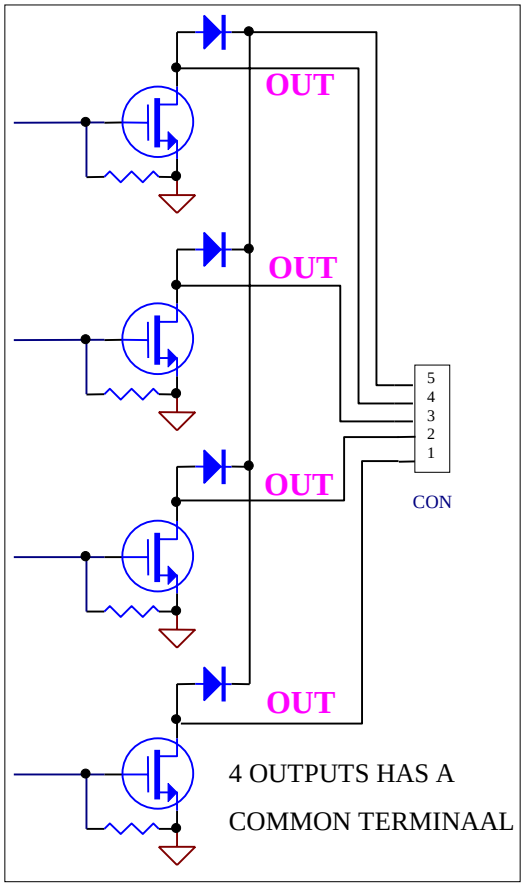
7.1 INPUT DIAGRAM

7.1.1.1.1 DIO CARD WIRING BOARD

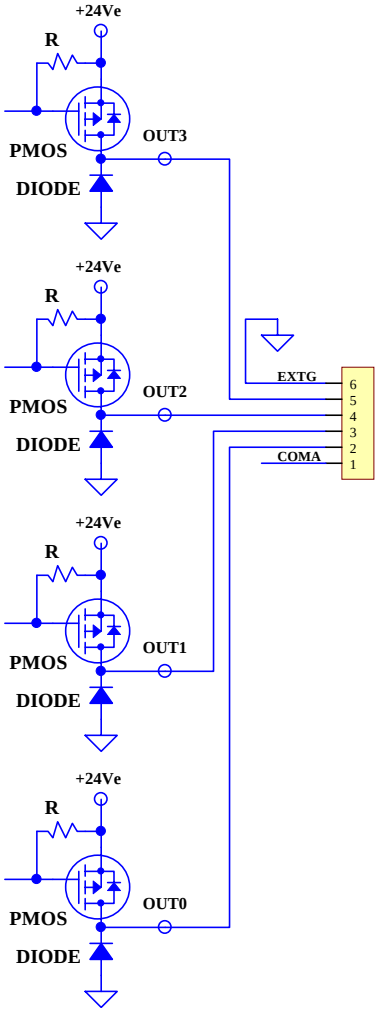


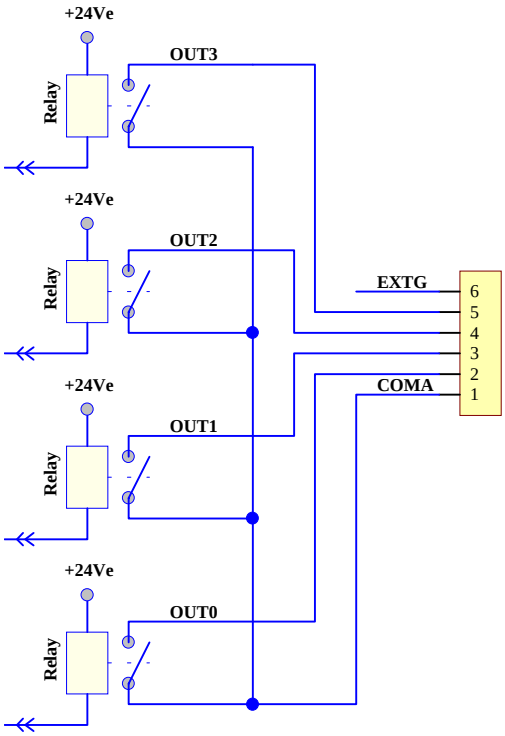
7.2 OUTPUT DIAGRAM (N MOS)

7.2.1 POWER MOS OUTPUT



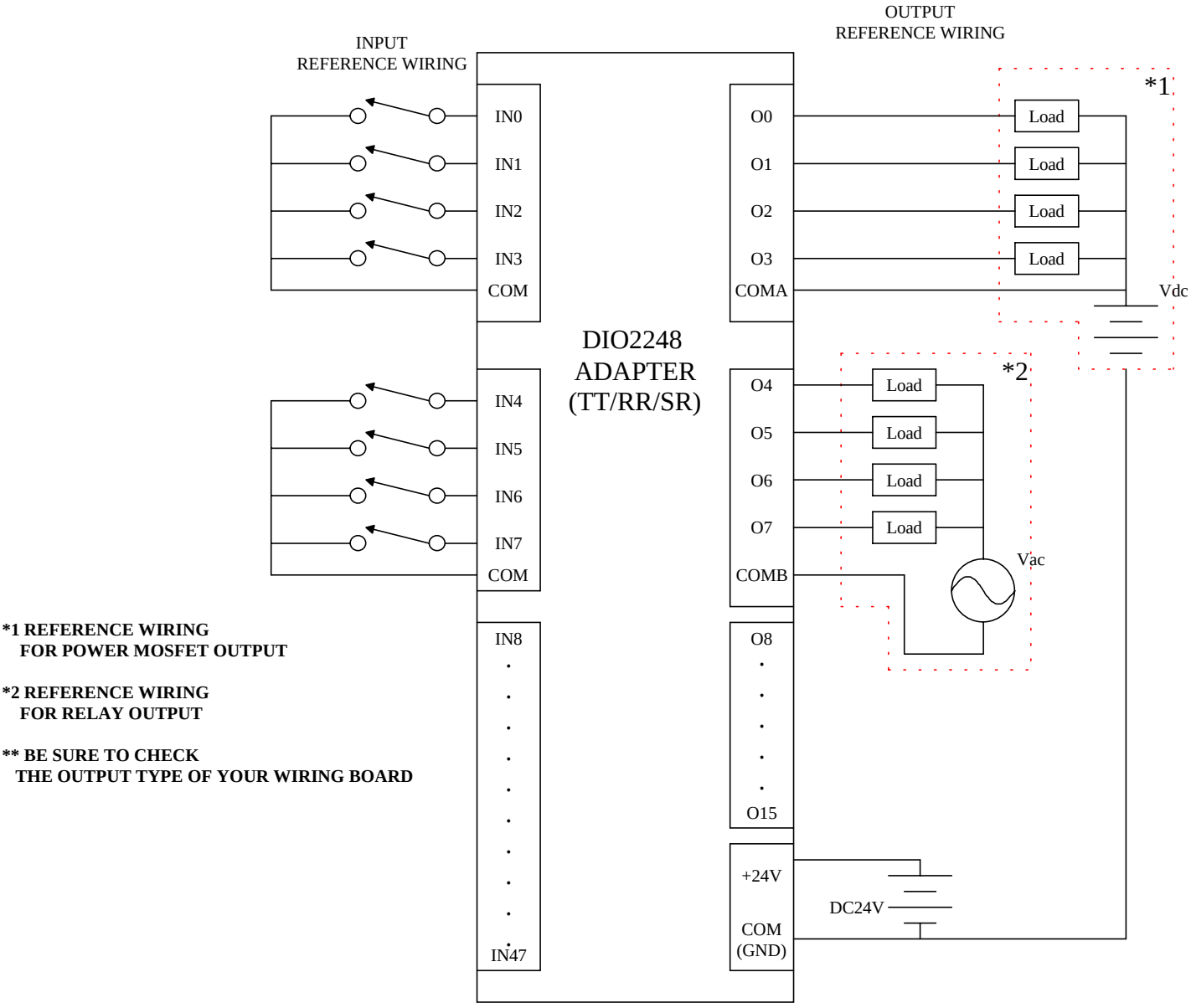
7.3 OUTPUT DIAGRAM (P MOS)



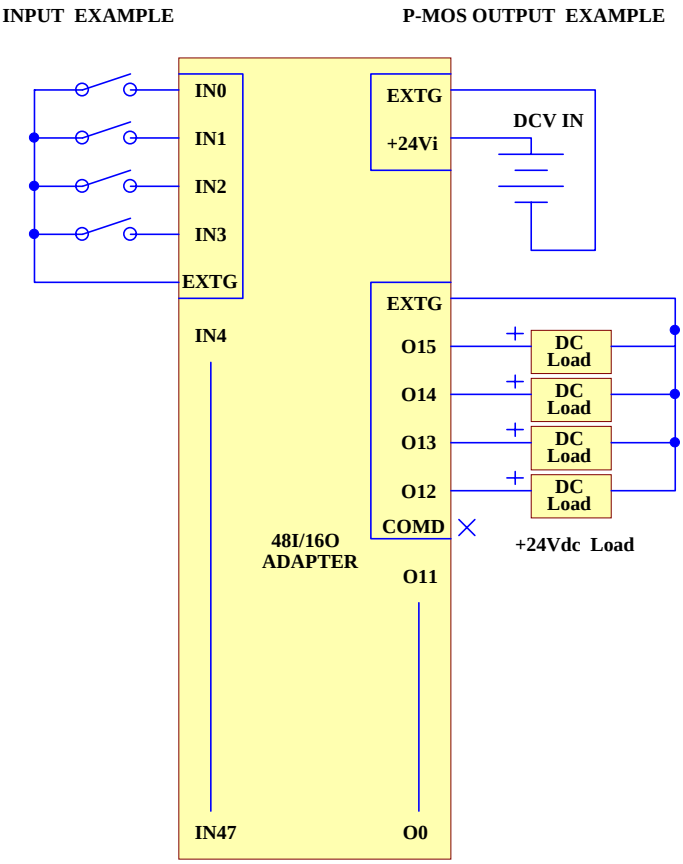


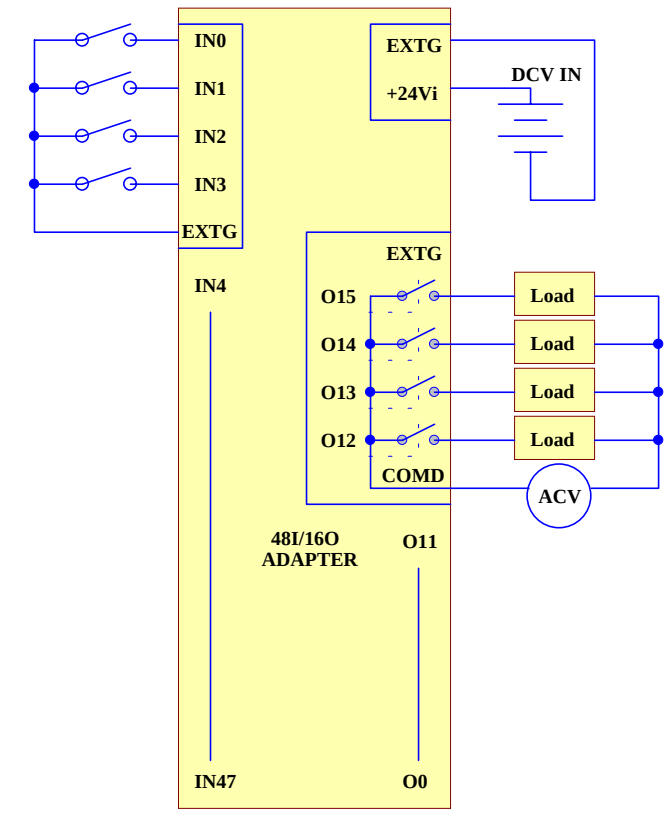
8. EXTERNAL WIRING DIAGRAM

8.1 EXTERNAL WIRING DIAGRAM (N MOS)



8.2 EXTERNAL WIRING DIAGRAM (P MOS)



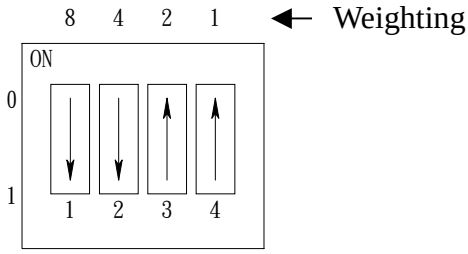


9. HARDWARE SETTINGS

9.1 CARD ID SETTING

Since PCI 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 for distinguishing the 16 identical card. The following example sets the card ID at 12.

DIP SW SETTING：(ID=12)



10. APPLICATIONS

10.1 Accept：

P.B./M.S./EMG./Contact- Start/Stop/Limit switch/sensor

Interlock/selective Sw.- Proximity switch

Aux. contact of transducer/detector

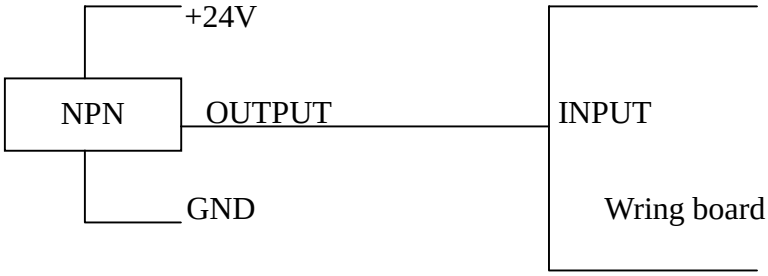
10.2 As I/O of S/W PLC Controller

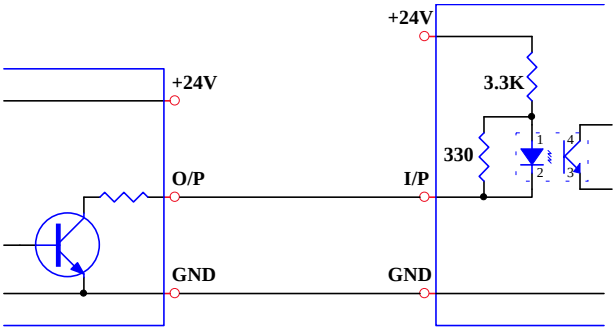
Power MOS type output: drive high speed DC load

11 APPLICATION NOTE

11.1 Tip for using NPN type proximity S/W：

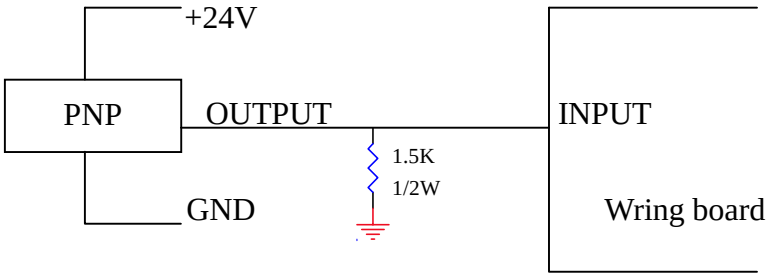
The NPN type proximity sensor can directly connect to input of wring board.

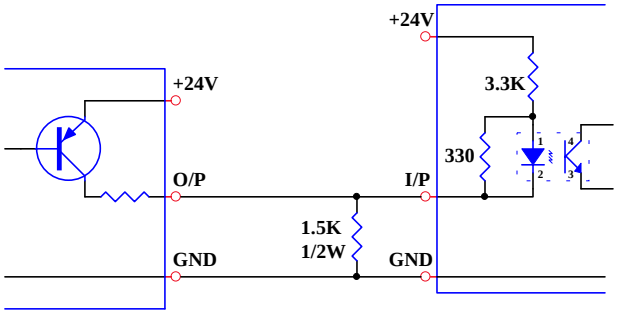




11.2 Tip for using PNP type proximity S/W：

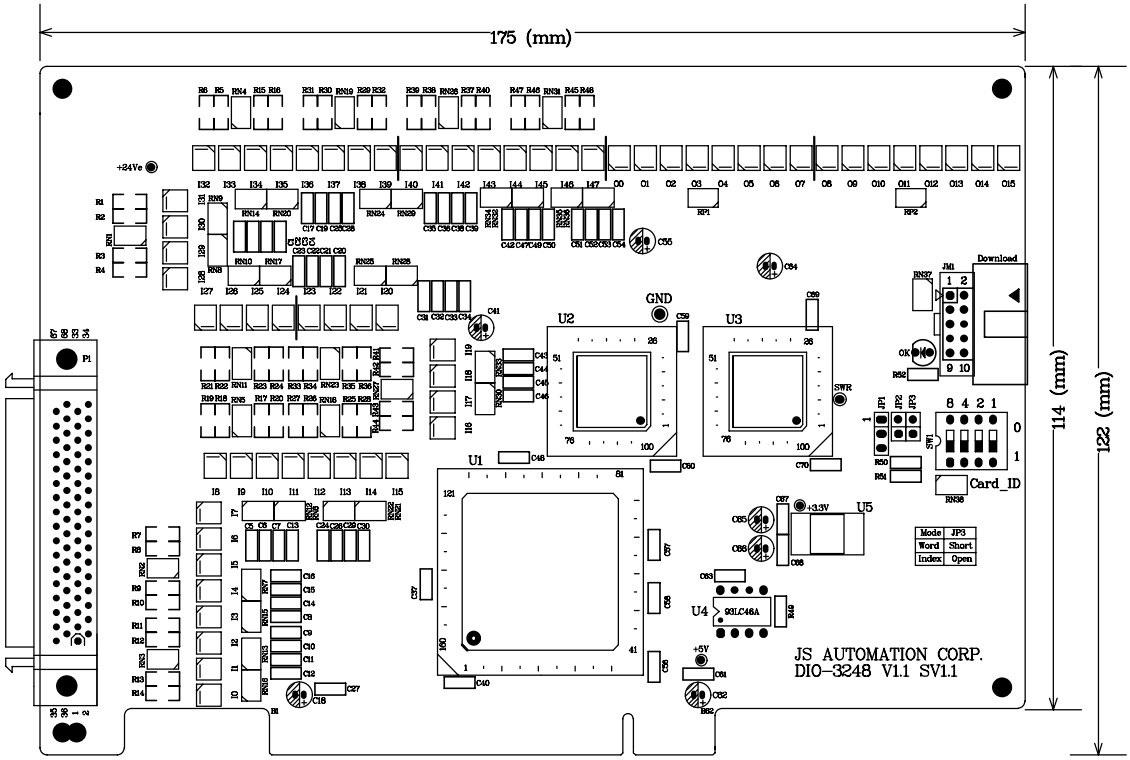
The PNP type proximity sensor need extra pull down resister connect to input of wring board.



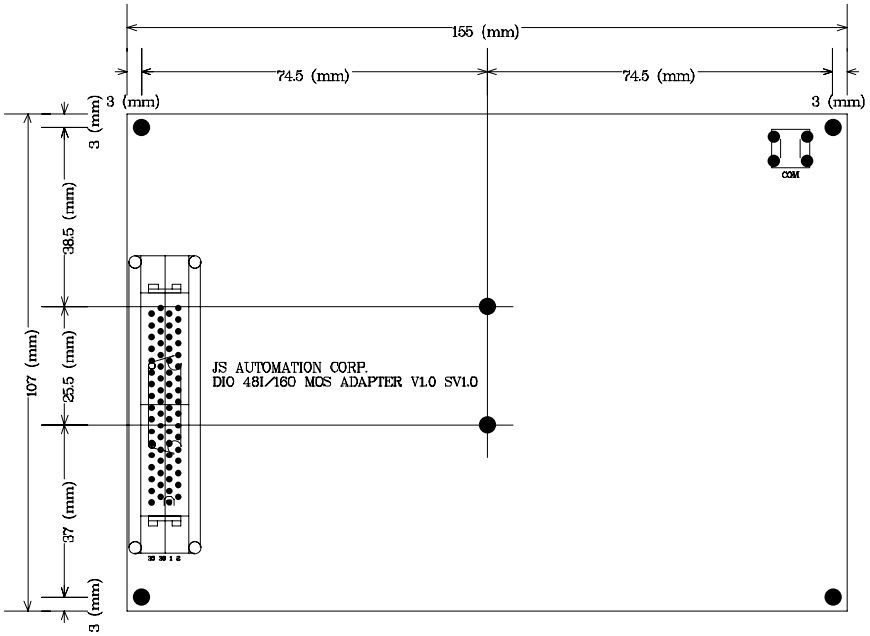


12 DIMENSION

12.1 DIO-3248 MAIN CARD DIMENSION



12.2 DIO-3248 DIN RAIL MOUNTED WIRING BOARD DIMENSION



13 ORDER INFORMATION

PRODUCT	DESCRIPTIONS
DIO-3248	Main card: 48 In and 16 Out with photo-coupler isolated
DIO-3248 DMO	Demo program of DIO-2248 card (free with user manual)
DIO-3248 WIN	Dll (VB/VC/C++ Builder) of DIO-2248 card for Win95/98/NT
DIO-3248 LVW	Vi of DIO-2248 card for LabVIEW
DIO-3248 DIN	DIN rail wiring board for 48 in and 16out