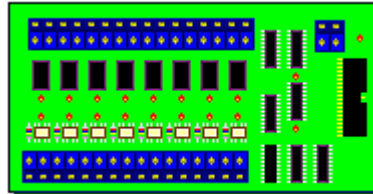


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**SMATLAB**  
INDUSTRIAL AUTOMATION SERIES



## USER'S MANUAL FOR 8 CHANNEL RELAY OUTPUT / ISOLATOR INPUT BOARD



8 channel relay output Isolator input board

Product Code: A8RELAY/8PHOTO

### INTRODUCTION

The 8 channel relay output / isolator input board provides relay output function and isolator input function. The relay output part provides 8 Single Pole Double Throw (SPDT) relays to drive 8 digital output lines. Each relay channel can be used to control ON/OFF of external devices, to drive external high power relays, to activate alarms etc. There are 8 LED indicators correspond to 8 relays, when relay is energized, the corresponding LED is light. The +12V power source is user selectable from internal PC bus or external power supplier.

The isolator input part provides 8 Photo isolated Digital Input Channel, which allow the input signals to be completely floated and prevent the ground loop. There are 8 LED indicators corresponds to 8 input channels, when the input channel is activated at high stat, the corresponding LED is light. The power source is user selectable from internal PC bus or external power supplier.

### The features of 8 Channel Relay Output / Isolator Input Board are :

#### 1. Relay Output Function.

- a. Support 8 SPDT relay channels.
- b. LED indicates when relay is energized.
- c. Internal and external power selectable.
- d. Built in screw terminals for easy wiring.
- e. The Normal Open (NO), Normal Close (NC), and Common contacts (COM) of each relay are brought out to the screw connector.
  - Max contact rating:
  - f. 150V/DC  
2amp,  
125V/AC  
2amp.
  - g. Breakdown voltage: AC/DC 500V minimum.
  - h. Relay on time: 3 ms typical.
  - i. Relay off time: 2 ms typical.
  - j. Isolation resistance: 100 ms typical.
  - k. Life expectancy: 5 million operation at full load.
  - l. Screw terminal: accept #22 to #12 awg wire.
  - m. Power consumption:

- +12V: 40mA for each relay, total 0.55 amp for all relays are energized.
- n. +5V : < 0.2 amp.
- 12V : < 0.1 amp.

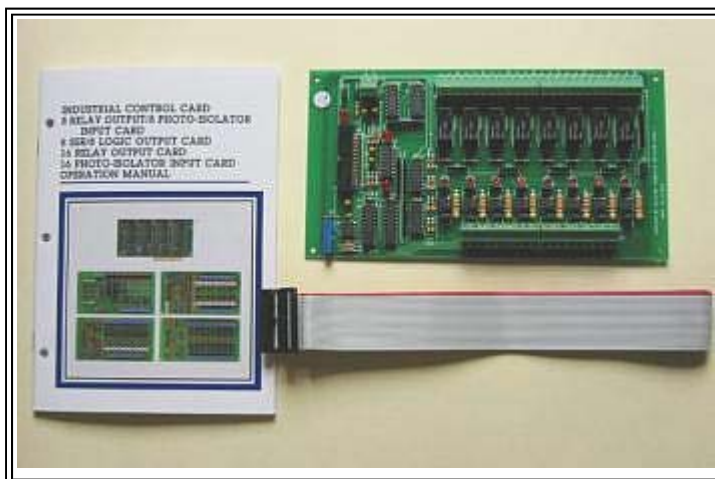
## 2. Isolator Input Function

- a. Support 8 opto-isolated input channels.
- b. LED indicated when input channel is activated.
- c. Internal and external power selectable.
- d. Built in screw terminals for easy wiring.
- e. Allow the input signals to be completely floated and prevent the ground loops.
- f. Isolated or non-isolated modes selectable.
- g. Input signals are buffered with voltage comparators.
- h. Input threshold voltage adjustable.
- i. Breakdown voltage: 1500 VDC.
- j. Screw terminal: accept #22 to # 12 awg wire.
- k. Input current: 80mA maximum for each isolated input.
- l. Input voltage: 30VDC maximum for each isolated input.

### The package includes following item

Check that your PCI bus Industry Control Card package includes the following items:

- 1.8 Channel Relay Output / Isolator Input Board.
- 2.One 26 pins flat cable.
- 3.User's manual.

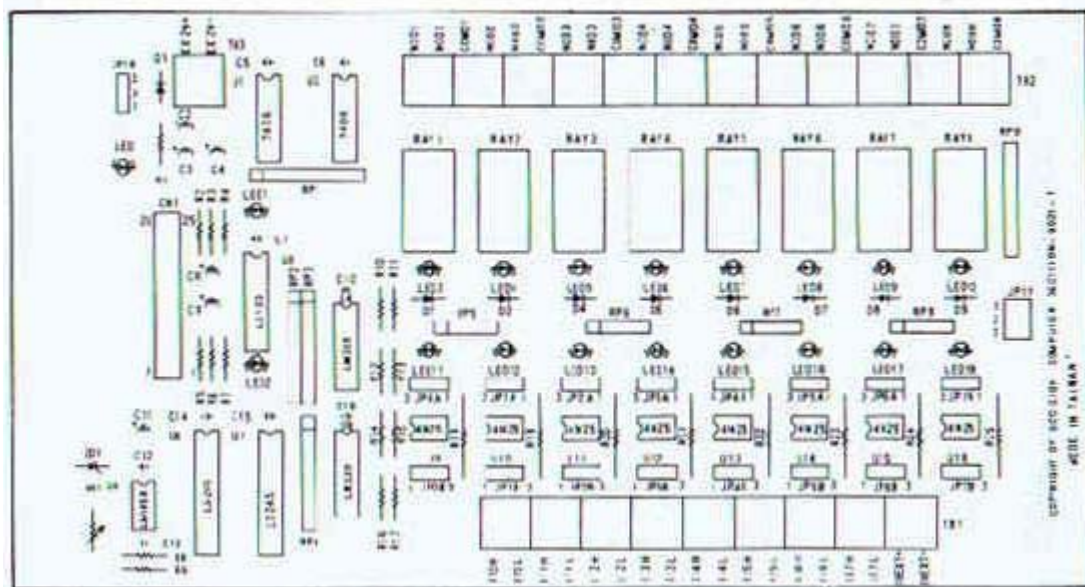


## HARDWARE INSTALLATION

### 2.1 Configuration For Jumper And Adjust VR

Before you use the 8 Channel Relay Output/ Isolator Input Board, you must ensure that the power supplier, jumpers, and connectors are set correctly. Observe the figure in the following, the proper settings for the 8 Channel relay Output / Isolator Input Board are described in the follows.

Setting the threshold voltage of Photo Isolator, adjust VR which is on the PCB to get the desired threshold voltage. The external input voltage which is over the threshold voltage will be recognized as HIGH (1) and the relative led will be light. Otherwise that will be LOW (0) and led be off.



## 2.2 Relay Output Function

1. Internal / external power selection.

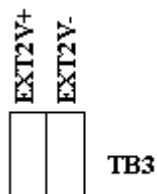
### JP18



JP-18 is to select external or PC bus power supply JP18-1, JP18-2 short mean PC bus power JP18-2, JP18-3 short mean external power. Suppose you connect more than two 8 channel relay output/isolator input boards, we suggest you use external power.

2. External power supplier

TB3 is used to connect +12V external power, the configuration is shown in the follows.

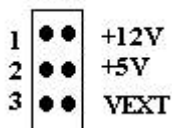


The input voltage is 12V (+/-) 1V, and the power consumption for all 8 channel relay output is 0.3 amp. A

## 2.3 Isolator Input Function

1. Internal/External power selection

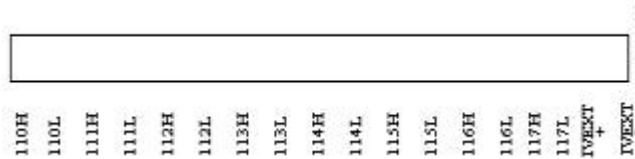
### JP17



User may use jumpers to select external or internal power supply. When the input signal is non-power signal (eg. Switch etc  $\frac{1}{2}$   $\frac{1}{2}$ ), internal power is selected, the PC bus power +12V or 5V can be selected by user. When the input is voltage or current, the external supplier is mean the signal itself that can adjusted from +5V to +30V.

JP17 is used to select internal or external power supply of input channels. When JP17-1 is shorted, the PC bus +12V power is selected, when JP17-2 is shorted, the PC bus +5V power is selected. If we short JP17-3, then the external power supplier is selected.

2.External Power Supplier in the follows.



The power supplier of I10 to I17 are TB1 and the external power range is from 5V to 30V.

3.Isolated and Non-Isolated



JP0B to JP7B are used to select isolated or non-isolated. When JPXB-1, JPXB-2 is sort, then the corresponds channel is in isolator mode. When JPXB-2, JPXB-3 is short, the IxL is short with system GND. So the external signal is in non-isolated mode. JP0A to JP7A are used to select power signal input or non-power signal input for the correspond channel. JpxA-1 and JpxA-2 short is power signal input mode. JpxA-2, JpxA-3 short is non-power input mode.

## 2.4 Signal Assignment

1.Signal assignment of 26 pins flat cable.

Â The 26 pins flat cable connector is connected to digital input / output interface card such as: industry control, TTL/I/O, 8255 I/O signal assignment of this connector is shown in the following.

Pin	Description	Pin	Description
1	+12V	14	INPUT 01
2	GND	15	INPUT 02
3	+12V	16	INPUT 03
4	GND	17	INPUT 04
5	OUTPUT 00	18	INPUT 05
6	OUTPUT 01	19	INPUT 06
7	OUTPUT 02	20	INPUT 07
8	OUTPUT 03	21	/CS1
9	OUTPUT 04	22	/CS2
10	OUTPUT 05	23	+12V
11	OUTPUT 06	24	GND
12	OUTPUT 07	25	-12V
13	INPUT 00	26	GND

## 2.Signal assignment of screw connector

The normal open, normal close, and common contracts signal of each relay are shown in the follows.

<b>No.</b>	<b>TB2</b>
1	NC01
2	NO01
3	C1
4	NC02
5	NO02
6	COM02
7	NC03
8	NO03
9	COM03
10	NC04
11	NO04
12	COM04
13	NC05
14	NO05
15	COM05