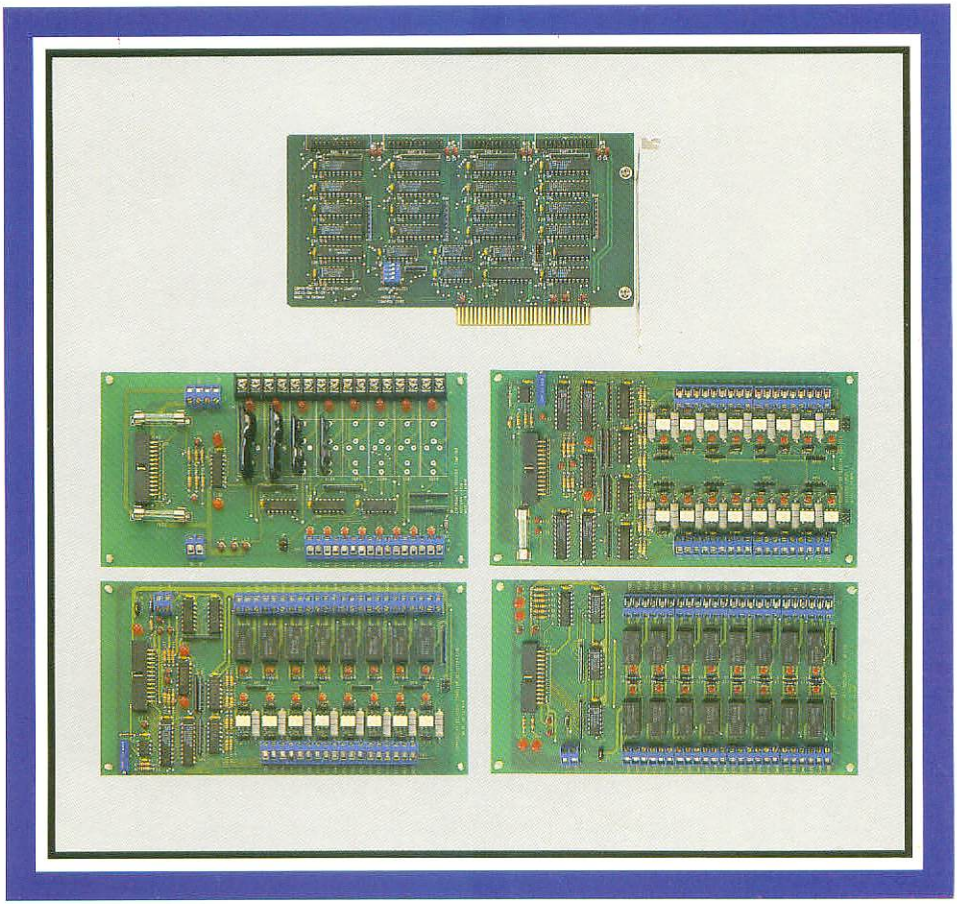
INDUSTRIAL CONTROL CARD
8 RELAY OUTPUT/8 PHOTO-ISOLATOR INPUT CARD
8 SSR/8 LOGIC OUTPUT CARD
16 RELAY OUTPUT CARD
16 PHOTO-ISOLATOR INPUT CARD
OPERATION MANUAL



INDUSTRIAL CONTROL CARD OPERATION MANUAL

CONTENTS:

CHAPTER 1 INTRODUCTION

The 8 channel industry control board is a programmable I/O interface card for PC/XT, PC/AT, PC/386, or compatibles. It provides total 8 digital I/O ports, each I/O port contains 8 I/O lines, and can be set either input or output by the user's program. The signal assignments of 8 channel industry control board is designed as a standard configurations, so that it can be used to connect to the expansion board for several applications, the expansion card family are 16/8 channel relay output board, 16/8 channel isolator input board, 8 channel SSR/Logic output board ... etc.

The features of 8 channel industry control board are:

* Provides eight I/O ports.

* Each I/O port contains 8 digital I/O lines, total 64 I/O lines.

* Port address selectable.

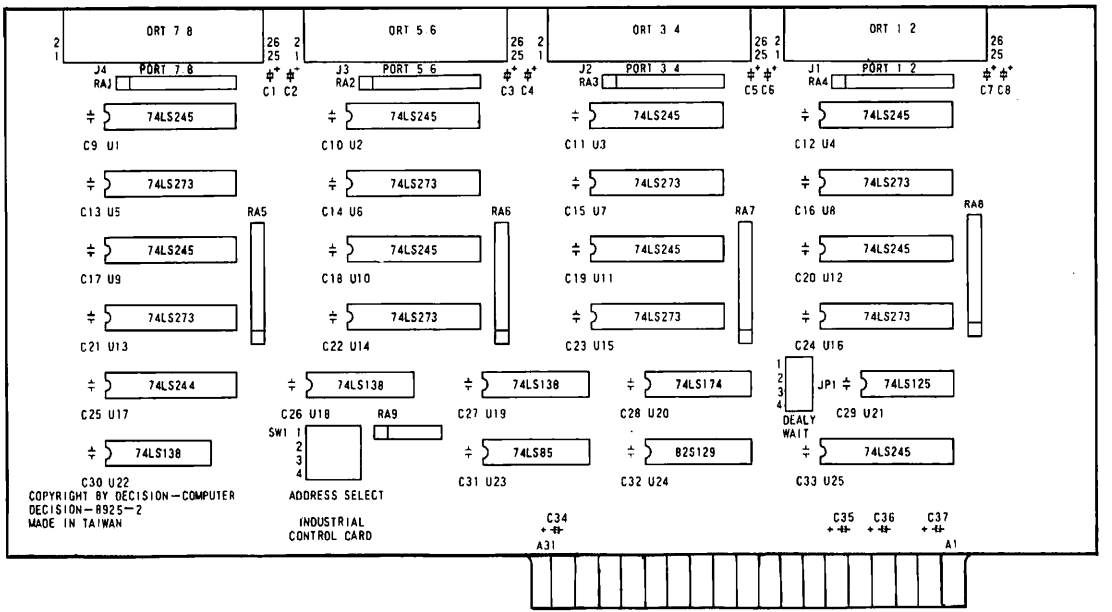
* Standard singal assignment to connect to expansion board family.

The package includes following items:

* 8 channel industry control board.
* Four expansion flat cable with 26 pins connector.
* User's manual.
* Diskette

CHAPTER 2 HARDWARE CONFIGURATION

Before you use the 8 channel industry control board, you must ensure that the I/O address is set correctly. Observe the figure in the follows, the proper settings for the 8 channel industry control board are described in the following.


ORT 7 8
ORT 5 6
ORT 3 4
ORT 1 2
J4 PORT 7 8
J3 PORT 5 6
J2 PORT 3 4
J1 PORT 1 2
RA1
RA2
RA3
RA4
C1 C2
C3 C4
C5 C6
C7 C8
74LS245
C9 U1
C10 U2
C11 U3
C12 U4
74LS273
C13 U5
C14 U6
C15 U7
C16 U8
RA5
RA6
RA7
RA8
C17 U9
C18 U10
C19 U11
C20 U12
C21 U13
C22 U14
C23 U15
C24 U16
74LS244
C25 U17
74LS138
C26 U18
RA9
SW1
ADDRESS SELECT
74LS138
C27 U19
74LS174
C28 U20
JP1
74LS125
C29 U21
DEALY WAIT
C30 U22
74LS85
C31 U23
B2S129
C32 U24
C33 U25
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DECISION-8925-2
MADE IN TAIWAN
INDUSTRIAL CONTROL CARD
C34
C35
C36
C37
A31
A1

2.1 I/O address

DIP switch is used to set I/O address, the I/O address mapping are:

SW1	SW2	SW3	SW4	I/O ADDRESS
on	on	on	on	180H -- 187H
on	on	on	off	188H -- 18FH
on	on	off	on	190H -- 197H
on	on	off	off	198H -- 19FH
on	off	on	on	1A0H -- 1A7H
on	off	on	off	1A8H -- 1AFH
on	off	off	on	1B0H -- 1B7H
on	off	off	off	1B8H -- 1BFH
off	on	on	on	1C0H -- 1C7H
off	on	on	off	1C8H -- 1CFH
off	on	off	on	1D0H -- 1D7H
off	on	off	off	1D8H -- 1DFH
off	off	on	on	1E0H -- 1E7H
off	off	on	off	1E8H -- 1EFH
off	off	off	on	1F0H -- 1F7H
off	off	off	off	1F8H -- 1FFH

2.2 Hardware Installation

Your 8 channel industry control board is designed to inserted in any available slot in your computer. In order to gain access to the expansion slots and the program switches on the main board, follow the steps listed in the followings.

1. Set the 8 channel industry control board switch.

2. Turn off all power of your computer and all peripheral devices before installing your 8 channel industry control board.

3. Remove the cover of the computer.

4. Insert your preconfigured board into any available slot. Make sure your I/O card is firmly seated in the chosen slot.

5. Replace the cover of the computer.

6. You are now ready to use your 8 channel industry control board for several applications.

2.3 Pin Assignments

1. connector 1 (J1)

Pin	Description	Pin	Description
1	+12V	14	port1/line1
2	GND	15	port1/line2
3	+12V	16	port1/line3
4	GND	17	port1/line4
5	port0/line0	18	port1/line5
6	port0/line1	19	port1/line6
7	port0/line2	20	port1/line7
8	port0/line3	21	/CS1
9	port0/line4	22	/CS2
10	port0/line5	23	+5V
11	port0/line6	24	GND
12	port0/line7	25	-12V
13	port1/line0	26	GND

2. connector 2 (J2)

Pin	Description	Pin	Description
1	+12V	14	port3/line1
2	GND	15	port3/line2
3	+12V	16	port3/line3
4	GND	17	port3/line4
5	port2/line0	18	port3/line5
6	port2/line1	19	port3/line6
7	port2/line2	20	port3/line7
8	port2/line3	21	/CS3
9	port2/line4	22	/CS4
10	port2/line5	23	+5V
11	port2/line6	24	GND
12	port2/line7	25	-12V
13	port3/line0	26	GND

3. connector 3 (J3)

Pin	Description	Pin	Description
1	+12V	14	port5/line1
2	GND	15	port5/line2
3	+12V	16	port5/line3
4	GND	17	port5/line4
5	port4/line0	18	port5/line5
6	port4/line1	19	port5/line6
7	port4/line2	20	port5/line7
8	port4/line3	21	/CS5
9	port4/line4	22	/CS6
10	port4/line5	23	+5V
11	port4/line6	24	GND
12	port4/line7	25	-12V
13	port5/line0	26	GND

4. connector 4 (J4)

Pin	Description	Pin	Description
1	+12V	14	port7/line1
2	GND	15	port7/line2
3	+12V	16	port7/line3
4	GND	17	port7/line4
5	port6/line0	18	port7/line5
6	port6/line1	19	port7/line6
7	port6/line2	20	port7/line7
8	port6/line3	21	/CS7
9	port6/line4	22	/CS8
10	port6/line5	23	+5V
11	port6/line6	24	GND
12	port6/line7	25	-12V
13	port7/line0	26	GND

CHAPTER 3 DIAGNOSTIC

The CONTROL.BAS program provides diagnostic routine to test your industry control board under MS/DOS operating system. Moreover, you can connect expansion board such as 16 channel photo isolate input board, 16 channel relay output board, 8 channel relay output / 8 channel photo isolate input board, and 8 channel SSR output / 8 channel logical output board to check whether these boards are good.

NOTE : In order to prevent violation of input data from input port, please reset the input port before perform input procedure, this mean you must output 255 to input port to reset it

BASIC EXAMPLE :

```
OUTPUT : OUT &H180,VALUE
INPUT  : OUT &H180,255: DATA=INP(&H180)
```

8 RELAY OUTPUT/8 PHOTO-ISOLATOR INPUT CARD OPERATION MANUAL

CONTENTS:

CHAPTER 1 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 channels, 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

* Support 8 SPDT relay channels.

* LED indicates when relay is energized.

* Internal and external power selectable.

* Built in screw terminals for easy wiring.

* The Normal Open (NO), Normal Close (NC), and Common contacts (COM) of each relay are brough out to the screw connector.

* Max contract rating: 150V/DC 2amp,125V/AC 2amp

* Breakdown voltage: AC/DC 500V minimum.

* Relay on time: 3 ms typical.

* Relay off time: 2 ms typical.

* Total switching time: 10 ms typical.

* Insolation resistance: 100 M OHM minimal.

* Life expectancy: 5 million operation at full load.

* Screw terminal: accept #22 to #12 awg wire.

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

2. Isolator Input Function

* Support 8 opto-isolated input channels.

* LED indicates when input channel is activated.

* Internal and external power selectable.

* Built in screw terminals for easy wiring.

* Allow the input signals to be completely floated and prevent the ground loops.

* Isolated or non-isolated modes selectable.

* Input signals are buffered with voltage comparators.

* Input threshold voltage adjustable.

* Breakdown voltage: 1500 VDC.

* Screw terminal: accept #22 to #12 awg wire.

* Input current: 80mA maximum for each isolated input.

* Input voltage: 30VDC maximum for each isolated input.

The package contains:

* 8 channel relay output / isolator input board.
* One 26 pins flat cable.
* User's manual.

CHAPTER 2 HARDWARE CONFIGURATION

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-Isolater,adjust VR which is on the PCB to get the desired threshold voltage. The execternal 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.

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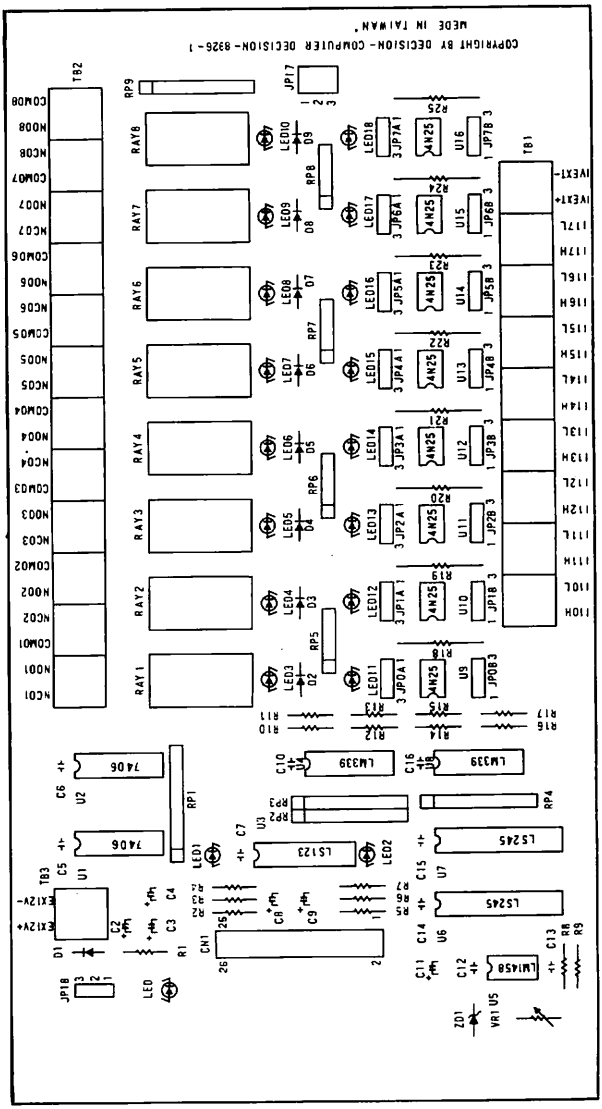
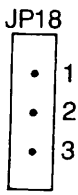


2.2 Relay Output Function

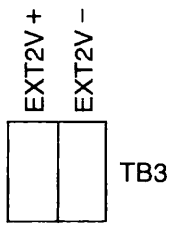
1. Internal/external power selection



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

2. External power supplier

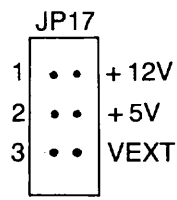
TB3 is used to connect +12V external power, the configuration is shown in the follows.



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

2.3 Isolator Input Function

1. Internal/external power selection



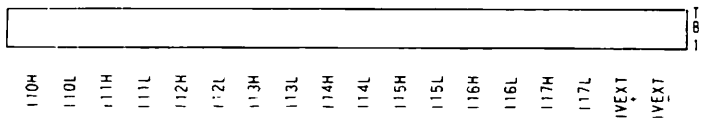
User may use jumpers to select external or internal power supply. When the input signal is non-power signal (eg. switct etc...), internal poweris selected , the PC bus power +12V or +5V can be selected by user . When

the input signal is voltage or current,the external supplier is mean the signal itself that can be 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.

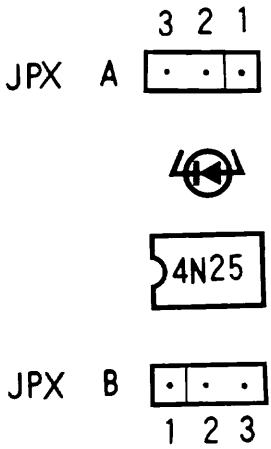
2. External power supplier

TB1-VEXT+, TB1-VEXT- is used to connect external power, the configuration is shown 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 Assignments

1. Signal assignment of 26 pins flat cable

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

Pin No.	Specifiaction	Pin No.	Specification
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	+5V
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 contacts signal of each relay are shown in the follows.

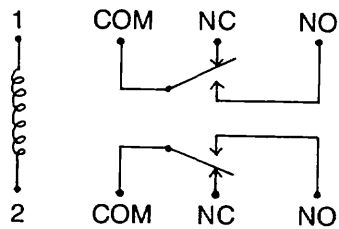
No.	TB2
1	NC01
2	NO01
3	C1
4	NC02
5	NO02
6	COM02
7	NC03
8	NO03
9	COM03
10	NC04
11	NO04
12	COM04
13	NC05
14	NO05
15	COM05
16	NC06
17	NO06
18	COM06
19	NC07
20	NO07
21	COM076
22	NC08
23	NO08
24	COM08

The signal assignment of each screw connector for input signal is shown in the follows.

No.	TB1
1	I10H
2	I10L
3	I11H
4	I11L
5	I12H
6	I12L
7	I13H
8	I13L
9	I14H
10	I14L
11	I15H
12	I15L
13	I16H
14	I16L
15	I17H
16	I17L
17	VEXT+
18	VEXT-

2.5 Circuit Diagram of Each Relay

The pin assignment and circuit diagram of each relay is shown in the follows.



Pin No.	Specification
1	+12V
2	COM
3	NC
4	NO
5	Led indication
6	Led indication
7	Led indication
8	GND

8 SSR/8 LOGIC OUTPUT CARD OPERATION MANUAL

CONTENTS:

CHAPTER 1 INTRODUCTION

The 8 channel SSR / logical output board provides 8 SSR output channels and 8 logical output channels. The SSR can be treated as a relay. Each SSR channel can be used to control ON / OFF of external devices, to drive external high power devices to activate alarms ... etc. There are 8 LED indicators correspond to 8 SSR channels, when SSR is energized, the corresponding LED is light.

The output voltages of logical output channel are user selectable, user may select +5V, +12V, or the external voltage lower than 40V DC. There are 8 LED indicator corresponds to 8 logical output channels, when output voltage is low, then the corresponding LED is light.

The features of 8 channel SSR / logical output board are:

* Support 8 SSR output channels and 8 logical output channel.

* The SSR operation characteristics are similar to relay.

* Provides more than 12 types of SSR output module which are tabled below.

* LED indicates when signal is energized.

* Built in screw terminals for easy wiring.

* Maximum voltage of logical output channel is 40V DC.

* Maximum sink current of logical output channel is 100mA.

* Screw terminal: accept #22 to #12 awg wire.

* The specifications of SSR are :

TYPE			AC-SSR										DC-SSR	
			A3P				A5P • A6P						D3P	
			102C	102N	202C	202N	102	202	103	203	104	204	052	054
FEATURE														
OUTPUT	MAX LOAD CURRENT(A)	5.0 4.0 3.0 2.0 1.6 1.2												
	MAX LOAD VOLTAGE	AC	24 ~ 150		24 ~ 250		50 ~ 150		50 ~ 250		50 ~ 150	50 ~ 250	—	
		DC	—				—						3 ~ 50	
	SURGE ON CURRENT		30				30		40		50		3 | 5 SEC	
	OPEN CURRENT (mA)		1.5 | 3.0 MAX				2.5 | 5.0 MAX		2.5 | 5.0 MAX		2.5 | 5.0 MAX		1.0μA MAX	
	CONTACT DROP (V)		1.5 MAX										1.2 MAX	
	MIN ACTIVE CURRENT (mA)		20										1	
INPUT	INPUT VOLTAGE	AC	—				—						—	
		DC	4 ~ 8				3 ~ 24						3.5 ~ 24	
	INPUT IMPEDANCE (KΩ)		0.18				1.5						15	
	PICK UP VOLTAGE (V)		4.0 MAX				3.0 MAX						3.5 MAX	
	DROP OUT VOLTAGE (V)		1.0 MIN											
COMMON	ISOLATE VOLTAGE (V_{AC})		2,500											
	ISOLATE IMPEDANCE (Ω)		10^8 MIN											
	ACTIVE TEMP (°C)		−20 ~ +80											
	STORAGE TEMP (°C)		−30 ~ +100											
	RESPENSE TIME		1m SEC MAX										0.5m SEC/MAX	
	CAPACITANCE		15 PF MAX											
	ZERO CROSS		YES	NO	YES	NO	YES						—	
	SNUBBER CIRCUIT		YES										NO	

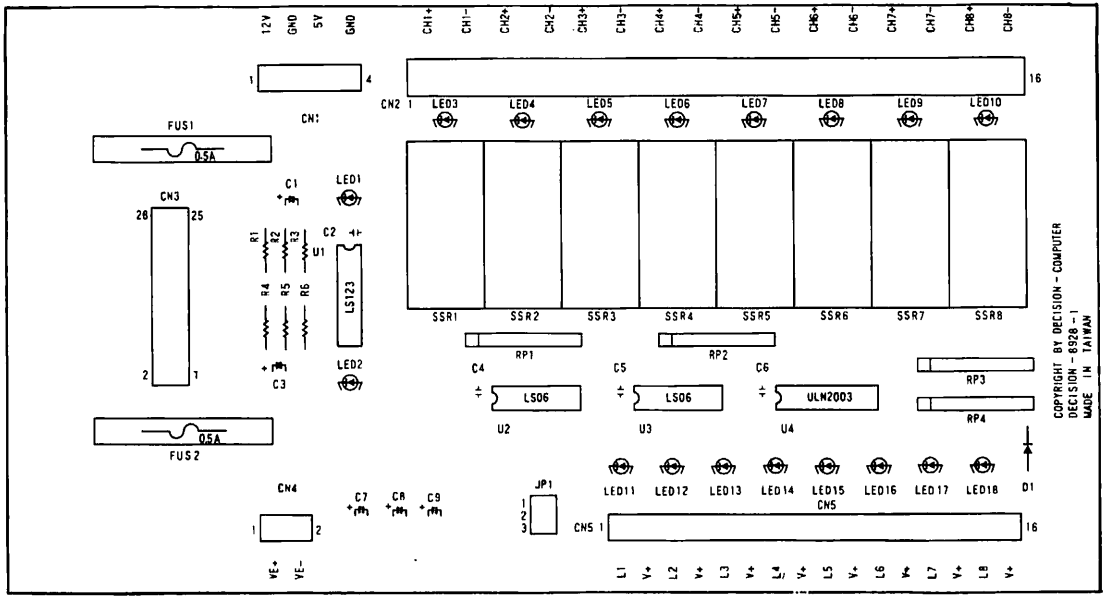
The package contains:

* 8 channel SSR / logical output board.
* One 26 pins flat cable.
* User's manual.

CHAPTER 2 HARDWARE CONFIGURATION

2.1 Configuration For Jumper

Before you use the 8 channel SSR / logical output board, you must ensure that the jumpers and connectors are set correctly. Observe the figure in the following, the proper settings for the 8 channel SSR / logical output board are described in the follows.


12V
GND
5V
GND
CH1+
CH1-
CH2+
CH2-
CH3+
CH3-
CH4+
CH4-
CH5+
CH5-
CH6+
CH6-
CH7+
CH7-
CH8+
CH8-
CN1
CN2
LED3
LED4
LED5
LED6
LED7
LED8
LED9
LED10
FUS1
0.5A
C1
LED1
CN3
R1
R2
R3
U1
C2
LS123
R4
R5
R6
SSR1
SSR2
SSR3
SSR4
SSR5
SSR6
SSR7
SSR8
RP1
RP2
C4
C5
C6
LS06
LS06
ULN2003
U2
U3
U4
RP3
RP4
C3
LED2
FUS2
0.5A
CN4
C7
C8
C9
JP1
LED11
LED12
LED13
LED14
LED15
LED16
LED17
LED18
D1
CN5
VE+
VE-
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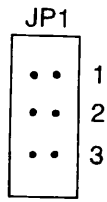
2.2 Output Voltage Selection



JP1 is used to select output voltage, when JP1-1 is short, then the output voltage is 5V. When the JP1-2 is short, we select 12V as the output voltage. Suppose the output voltage we required is not 5V or 12V, the JP1-3 is short, to use the VEXT voltage.

TB3 is used to connect external power, the configuration is shown in the follows. The maximum input voltage is 40V DC.

2.3 Signal Assignments

1. Signal assignment of 26 pins flat cable

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

Pin No.	Specifiaction	Pin No.	Specification
1	+12V	14	I/O line 9
2	GND	15	I/O line 10
3	+12V	16	I/O line 11
4	GND	17	I/O line 12
5	I/O line 0	18	I/O line 13
6	I/O line 1	19	I/O line 14
7	I/O line 2	20	I/O line 15
8	I/O line 3	21	/CS1
9	I/O line 4	22	/CS2
10	I/O line 5	23	+5V
11	I/O line 6	24	GND
12	I/O line 7	25	-12V
13	I/O line 8	26	GND

2. Signal assignment of screw connector

The SSR output signals and logical output singals are shown in the follows. TB1 is the screw connector of SSR output channel and TB2 is the screw connector of logical outout channel.

No.	TB1	TB2
1	CH0+	CH8
2	CH0-	V+
3	CH1+	CH9
4	CH1-	V+
5	CH2+	CH10
6	CH2-	V+
7	CH3+	CH11
8	CH3-	V+
9	CH4+	CH12
10	CH4-	V+
11	CH5+	CH13
12	CH5-	V+
13	CH6+	CH14
14	CH6-	V+
15	CH7+	CH15
16	CH7-	V+

The TB4 is output voltage connector, TB4-1 supports 12V, TB4-2 supports 0V, TB4-3 supports 5V, and TB4-4 supports 0V.

16 RELAY OUTPUT CARD OPERATION MANUAL

CONTENTS:

CHAPTER 1 INTRODUCTION

The 16 channel relay output board provides 16 Single Pole Double Throw (SPDT) relays to drive 16 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 16 LED indicators correspond to 16 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 features of 16 channel relay output board are:

* Support 16 SPDT relay channels.
* LED indicates when relay is energized.
* Internal and external power selectable.
* Built in screw terminals for easy wiring.
* The Normal Open (NO), Normal Close (NC), and Common contacts (COM) of each relay are brough out to the screw connector.
* Max contract rating: 150V/DC 2amp , 125V/AC 2amp .
* Breakdown voltage: AC/DC 500V minimum.

* Relay on time: 3 ms typical.

* Relay off time: 2 ms typical.

* Total switching time: 10 ms typical.

* Insolation resistance: 100 M OHM minimal.

* Life expectancy: 5 million operation at full load.

* Screw terminal: accept #22 to #12 awg wire.

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

The package contains:

* 16 channel relay output board.

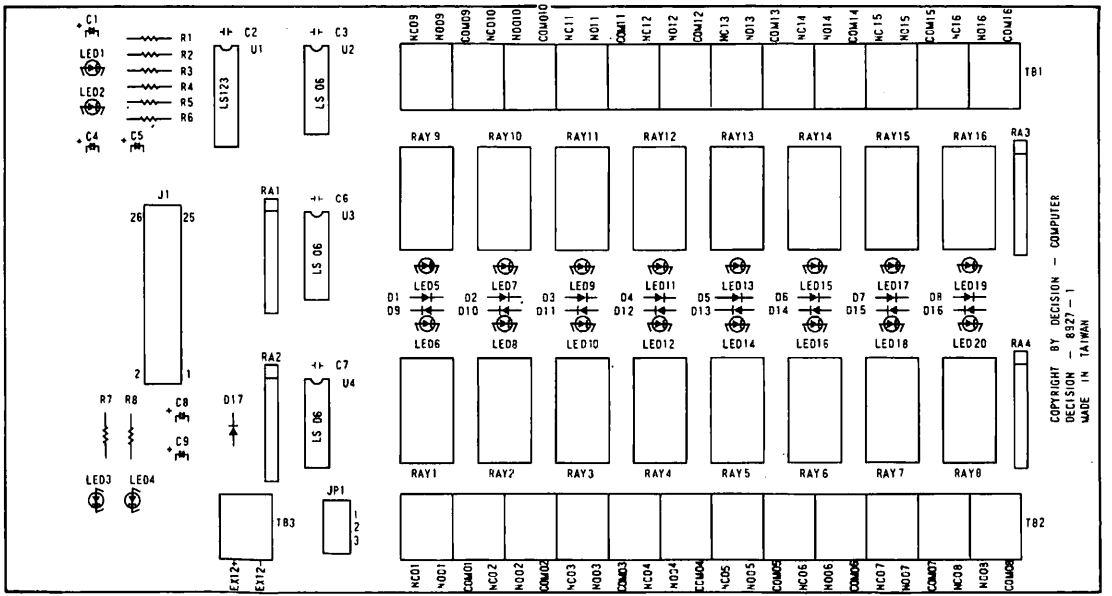
* One 26 pins flat cable.

* User's manual.

CHAPTER 2 HARDWARE CONFIGURATION

2.1 Configuration For Jumper

Before you use the 16 channel relay output board, you must ensure that the power supplier and connectors are set correctly. Observe the figure in the following, the proper settings for the 16 channel relay output board are described in the follows.


C1
LED1
LED2
C4
C5
R1
R2
R3
R4
R5
R6
C2
U1
LS123
C3
U2
LS 06
J1
26
25
2
1
RA1
C6
U3
LS 06
RA2
C7
U4
LS 06
R7
R8
C8
C9
LED3
LED4
D17
TB3
JP1
1
2
3
EX12+
EX12-
NC09
NO09
COM09
NC10
NO010
COM010
NC11
NO11
COM11
NC12
NO12
COM12
NC13
NO13
COM13
NC14
NO14
COM14
NC15
NO15
COM15
NC16
NO16
COM16
TB1
RAY 9
RAY10
RAY11
RAY12
RAY13
RAY14
RAY15
RAY16
RA3
LED5
LED7
LED9
LED11
LED13
LED15
LED17
LED19
D1
D9
D2
D10
D3
D11
D4
D12
D5
D13
D6
D14
D7
D15
D8
D16
LED6
LED8
LED10
LED12
LED14
LED16
LED18
LED20
RA4
RAY1
RAY2
RAY3
RAY4
RAY5
RAY6
RAY7
RAY8
NC01
NO01
COM01
NC02
NO02
COM02
NC03
NO03
COM03
NC04
NO04
COM04
NC05
NO05
COM05
NC06
NO06
COM06
NC07
NO07
COM07
NC08
NO03
COM08
TB2
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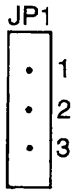
DECISION - 8327 - 1
MADE IN TAIWAN

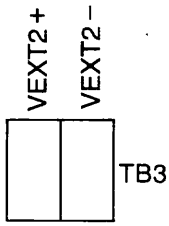
1. Internal/external power selection



JP1 is used to select internal or external power supply, when JP1-1 and JP1-2 is short, the power is supplied by PC bus. When JP1-2 and JP1-3 is short, the power is supplied by external power supplier. Suppose you connect more than two 16 channel relay output board, 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 each 16 channel relay output board is 0.55 amp.

2.2 Signal Assignments

1. Signal assignment of 26 pins flat cable

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

Pin No.	Specifiaction	Pin No.	Specification
1	+12V	14	I/O line 9
2	GND	15	I/O line 10
3	+12V	16	I/O line 11
4	GND	17	I/O line 12
5	I/O line 0	18	I/O line 13
6	I/O line 1	19	I/O line 14
7	I/O line 2	20	I/O line 15
8	I/O line 3	21	/CS1
9	I/O line 4	22	/CS2
10	I/O line 5	23	+5V
11	I/O line 6	24	GND
12	I/O line 7	25	-12V
13	I/O line 8	26	GND

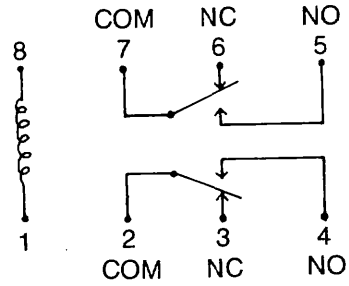
2. Signal assignment of screw connector

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

No.	TB1	TB2
1	NC01	NC09
2	NO01	NO09
3	COM01	COM09
4	NC02	NC010
5	NO02	NO010
6	COM02	COM010
7	NC03	NC11
8	NO03	NO11
9	COM03	COM11
10	NC04	NC12
11	NO04	NO12
12	COM04	COM12
13	NC05	NC13
14	NO05	NO13
15	COM05	COM13
16	NC06	NC14
17	NO06	NO14
18	COM06	COM14
19	NC07	NC15
20	NO07	NO15
21	COM07	COM15
22	NC08	NC16
23	NO08	NO16
24	COM08	COM16

2.3 Circuit Diagram of Each Relay

The pin assignment and circuit diagram of each relay is shown in the follows.



Pin No.	Specification
1	+12V
2	COM
3	NC
4	NO
5	Led indication
6	Led indication
7	Led indication
8	Gnd

16 PHOTO-ISOLATOR INPUT CARD OPERATION MANUAL

CONTENTS:

CHAPTER 1 INTRODUCTION

The 16 channel isolator input board provides 16 opto-isolated digital input channels, which allow the input signals to be completely floated and prevent the ground loop. There are 16 LED indicators correspond to 16 input channels, when the input channel is activated at high status, the corresponding LED is light. The power source is user selectable from internal PC bus or external power supplier.

The features of 16 channel isolator input board are:

* Support 16 opto-isolated input channels.
* LED indicates when input channel is activated.
* Internal and external power selectable.
* Built in screw terminals for easy wiring.
* Allow the input signals to be completely floated and prevent the ground loops.
* Isolated or non-isolated modes selectable.
* Input signals are buffered with voltage comparators.

* Input threshold voltage adjustable.
* Breakdown voltage: 1500V VDC.

* Screw terminal: accept #22 to #12 awg wire.

* Input current: 80mA maximum for each isolated input.

* Input voltage: 30VDC maximum for each isolated input.

The package contains:

* 16 channel isolator input board.

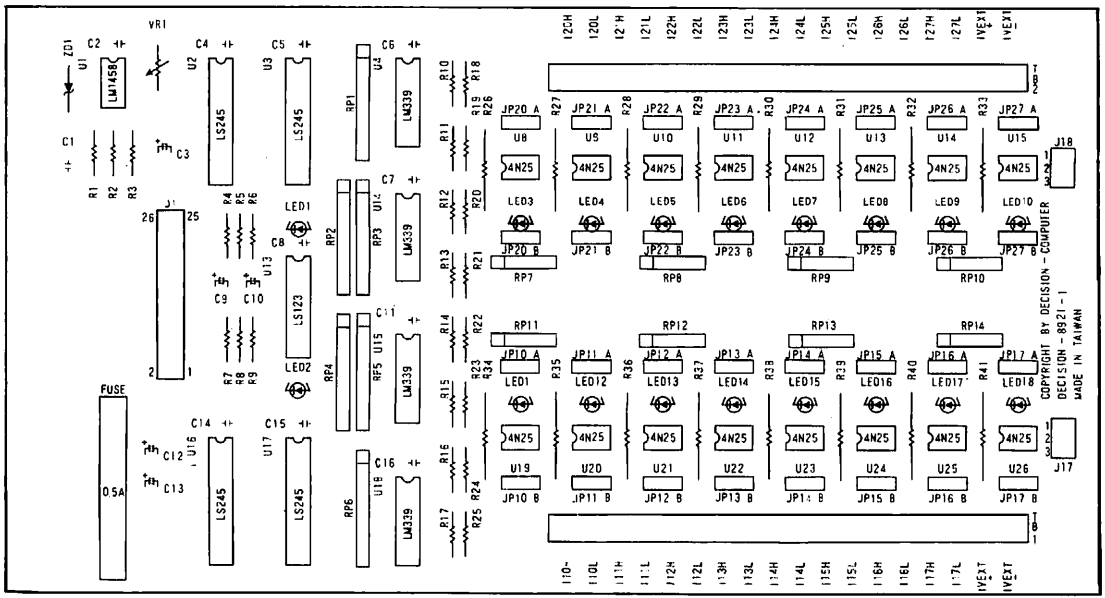
* One 26 pins flat cable.

* User's manual.

CHAPTER 2 HARDWARE CONFIGURATION

2.1 Configuration For Jumper

Before you use the 16 channel isolator input board, you must ensure that the power supplier, jumpers, and connectors are set correctly. Observe the figure in the following, the pròper settings for the 16 channel isolator input board are described in the follows.


COPYRIGHT BY DECISION - COMPUTER
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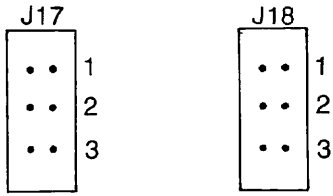
MADE IN TAIWAN
FUSE
0.5A
LM1458
LS245
LS123
LM339
4N25
J18
J17

1. Internal/external power selection

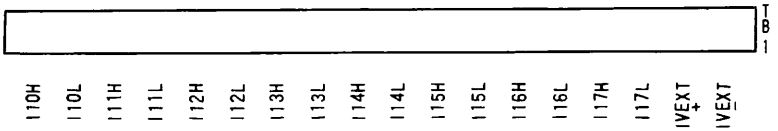


User may use jumpers to select external or internal power supply. When internal power is selected, the PC bus power +12V or +5V can be selected by the user. The external power supplier can be adjusted from +5V to +30V.

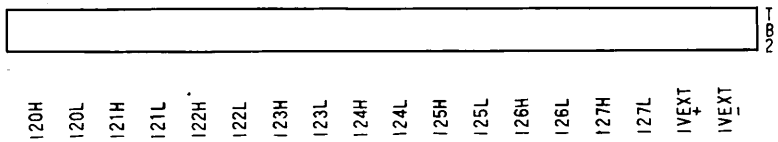
JP17 is used to select internal or external power supply of Input channels I10 to I17, and JP18 is used to select internal or external power supply of input channels I20 to I27. When JP17-1 or JP18-1 is shorted, the PC bus +12V power is selected, when JP17-2 or JP18-2 is shorted, the PC bus +5V power is selected. If we short JP17-3 or JP18-3, then the external power supplier is selected.

2. External power supplier

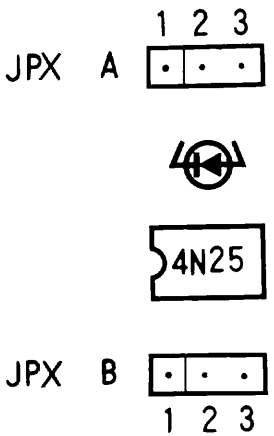
TB1-VEXT+, TB1-VEXT- and TB2-VEXT+, TB2-VEXT- are used to connect external power, the configuration is shown in the follows.



The power supplier of I10 to I17 are TB1, and the power supplier of I20 to I27 are TB2. The external power range is from 5V to 30V.



3. Isolated and Non-isolated



JP0A to JP15A and JP0B to JP15B are used to select isolated or non-isolated, the JPXA corresponding to I1X channel and the JPXB corresponding to I2X channel. When JPXA-1, JPXA-2 is short and JPXB-1, JPXB-2 is sort, then the corresponds channel is in isolator mode. When JPXA-2, JPXA-3 is short and JPXB-2, JPXB-3 is short, the power is supplied by PC bus or external power supplier.

2.2 Signal Assignments

1. Signal assignment of 26 pins flat cable

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

Pin No.	Specifiaction	Pin No.	Specification
1	+12V	14	I21
2	GND	15	I22
3	+12V	16	I23
4	GND	17	I24
5	I10	18	I25
6	I11	19	I26
7	I12	20	I27
8	I13	21	/CS1
9	I14	22	/CS2
10	I15	23	+5V
11	I16	24	GND
12	I17	25	-12V
13	I20	26	GND

2. Signal assignment of screw connector

The signal assignment of each screw connector is shown in the follows.

No.	TB1	TB2
1	I10H	I20H
2	I10L	I20L
3	I11H	I21H
4	I11L	I21L
5	I12H	I22H
6	I12L	I22L
7	I13H	I23H
8	I13L	I23L
9	I14H	I24H
10	I14L	I24L
11	I15H	I25H
12	I15L	I25L
13	I16H	I26H
14	I16L	I26L
15	I17H	I27H
16	I17L	I27L
17	VEXT+	VEXT+
18	VEXT-	VEXT-