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PCLD-885

16 Channel Power Relay Output Board

USER'S MANUAL

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CHAPTER 1. GENERAL INFORMATION

1.1. Introduction

The PCLD-885 Power Relay Output Board is equipped with 16 electro-mechanical SPST relay outputs, driven via a 16 bit digital output port on most PC-LabCards. These relays can be used for general purpose switching control applications, such as setting up test configurations or power ON/OFF switching. One red LED (adjacent to each relay) lights up when a relay is energized.

1.2. Features

- 16 single-pole-single-throw(SPST) power relay outputs
- High power relays handle up to 3A/250VAC, 3A/30VDC
- Industrial grade screw terminals for easy wiring
- LED indicators indicate when relays are activated
- On-board varistor to protect relay contact point
- Accept either 20 pin connector or 50 pin opt-22 connector

1.3. Applications

- Power/signal switching
- Device ON/OFF control
- Valve/solenoid control
- Annunciator control
- Activate alarms

1.4. Specifications

Relay

- Relay type: single-pole-single-throw (SPST), normally open (NO)
- Max. Switch power: AC: 1250 VA, DC: 150 W
- Contact rating: 6A/250 VAC, 3A/30 VDC.

- Contact resistance: 30 mΩ
- Life expectancy:
  Mechanical: 20 million operations
  Electrical: 100,000 operations (at rated load)
- Insulation resistance : 1000 Mohms at 500 VDC
- Dielectric strength:
  700 VAC 1 minute, between open contacts
  2,000 VAC 1 minute, between coil and contacts
- Operate time: 6 ms max.
- Release time: 3 ms max.

Varistor

- Maximum applied voltage: 300Vrms AC, continuous
- Varistor voltage: 470V ± 10% (I=1mA)
- Clamping voltage: 760V (10A)
- Max peak current: 1200A (8μs)

General

- Power consumption:
  +12V: 22mA each when relay is energized, total of 352mA if all relays are energized
  +5V: 200mA max.
- Connector:
  One 20-pin connector for most standard PC-LabCards, and one 50-pin opt-22 compatible, connector for PCL-722, PCL-724 or PCL-814 DIO-1.
- Terminal block:
  Two 20-pin terminal blocks with 2000 VAC (min.) insulation voltage.

CHAPTER 2. INSTALLATION

2.1. Initial Inspection

Inside the shipping container, you should find this operating manual and the PCLD-885. The PCLD-885 also furnishes with one 20 pin flat cable(P/N: PCL-10120-1) and one 50 pin flat cable assembly (P/N: PCL-10150-1.2)

The PCLD-885 has been carefully inspected, both mechanically and electrically, before shipment. It should be in perfect electrical order when you receive it.

Remove the PCLD-885 daughter board from its protective package. Keep the package, since it may be used to return the card if it needs repairs. The package may also be used if the card is to be stored outside of the computer.

The daughter board should be handled only by the edges. The integrated circuits on the board can be damaged by static electric discharge.

2.2. Connectors and Jumpers

NOTE: The CN1 and CN2 are not to be used at the same time.

CN1: CN1 is a 20-pin connector. The following diagram illustrates CN1's pin assignments:

CN1

CH 0	1	2	CH 1
CH 2	3	4	CH 3
CH 4	5	6	CH 5
CH 6	7	8	CH 7
CH 8	9	10	CH 9
CH 10	11	12	CH 11
CH 12	13	14	CH 13
CH 14	15	16	CH 15
GND	17	18	GND
+5V	19	20	+12V

Legend:

CH:	Channel
GND:	Ground
+ 5V:	+5V power supply from PC
+12V:	+12V power supply from PC

CN2: CN2 is a 50-pin, opt-22 compatible connector. The following diagram illustrates CN2's pin assignments:

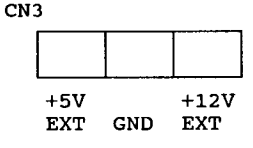
CN2

NC	1	2	GND
NC	3	4	GND
NC	5	6	GND
NC	7	8	GND
NC	9	10	GND
NC	11	12	GND
NC	13	14	GND
NC	15	16	GND
CH 15	17	18	GND
CH 14	19	20	GND
CH 13	21	22	GND
CH 12	23	24	GND
CH 11	25	26	GND
CH 10	27	28	GND
CH 9	29	30	GND
CH 8	31	32	GND
CH 7	33	34	GND
CH 6	35	36	GND
CH 5	37	38	GND
CH 4	39	40	GND
CH 3	41	42	GND
CH 2	43	44	GND
CH 1	45	46	GND
CH 0	47	48	GND
+5V	49	50	GND

Legend:

CH:	Channel
GND:	Ground
NC:	Not used
+5V:	+5V power supply from PC

CN3: CN3 is used to connect an external power supply to the PCLD-885. The following diagram illustrates CN3's pin assignments:



CN4, CN5: Wiring terminal blocks

CN4

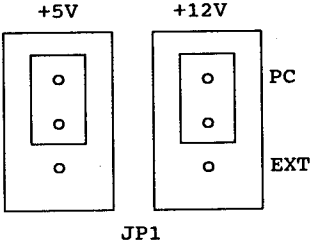
CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7

CN5

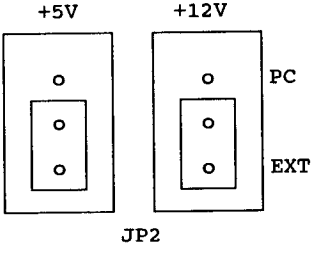
CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH15

JP1: Use JP1 to select power source.

1. Using your PC's power supply (factory setting):



2. Using an external power supply:



CHAPTER 3. OPERATION

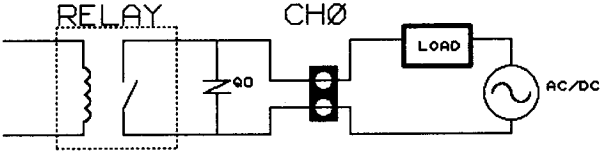
3.1. Power source Selection

The PCLD-885 requires both +12V and +5V power supplies in order for it to function properly. The PCLD-885 can be powered directly from the PC's I/O bus by connecting CN1 to almost any PC-LabCard.

The PCLD-885 also allows you to use an external power supply. First, set JP1 to configure it for an external power supply. Then connect your external power supply to CN3.

NOTE: CN2 is an opt-22 compatible connector which can be directly interfaced to the PCL-722 and PCL-724. Remember that this connector does not provide a +12V power supply pin. For applications requiring opt-22 isolation, you must use an external +12V power source.

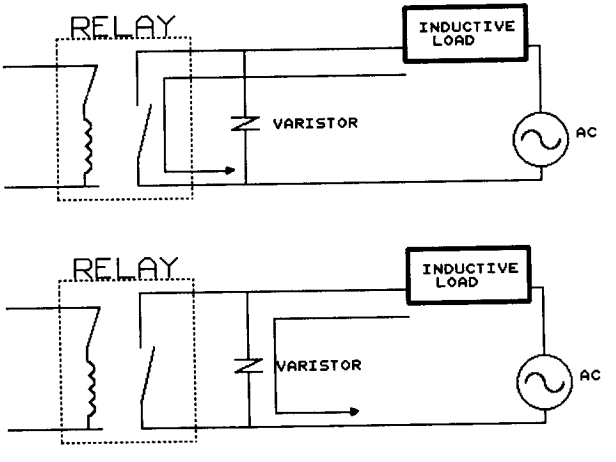
3.2. Wiring Diagram



3.3. Relay Contact Protection

When switching an inductive load, you will need to provide your system with adequate protection against arc discharges.

The PCLD-885 provides each relay with contact protection varistors (labeled from Q0 to Q15). If the PCLD-885's relay contact voltage is higher than 470V, the varistors will be activated. Once the varistors are activated, the high voltage is then shunted to protect the daughter board's relays from being damaged. The following diagram illustrates this in better detail:



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