PCI BUS 4 CHANNELS RELAY OUTPUT / 4 CHANNES PHOTO ISOLATOR INPUT ADAPTER

OPERATION MANUAL

Operations Manual 4 Relay/4 PM

4 Relay/4 Photo Isolator card

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### CHAPTER 1 INTRODUCTION

The PCI bus 4 channels relay output / photo isolator input adapter is a 32 bits PCI bus board with Plug and Play (PnP) features, it is a programmable I/O interface card for PC/486, Pentium, or compatibles. The PnP features let hardware configuration for IRQ and I/O address is detected by BIOS automatically, you don't need set switch and jumper.

The PCI bus 4 channels relay output / photo isolator input adapter provides relay output functions and photo isolator input functions. The relay output part provides 4 relays to drive 4 different output channels. Each relay channel can be used to control ON / OFF of external devices, to drive external high power relays, to activate alarms ... etc. The photo isolator input part provides 4 photo couple digital input channels, which allow the input signals to be completely floated and prevent the ground loop.

The PCI bus 4 channels relay output / photo isolator input adapter can be used to connect to terminal board, which provides relay output and photo couple digital input, and can be used to control SSR devices.

#### The features of the PCI bus 4 channels relay output / 4 photo isolator input adapter are:

- 32 bits PCI bus with Plug and Play (PnP) features.
- Support 4 relay output channels and 4 photo couple input channels.
- Max contact rating for relay: 120V AC/DC 1AMP.

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- Attraction time for relay: 3 ms.
- Fall off time for relay: 2 ms.
- Isolation resistance for relay: 100M OHM.
- Life expectancy for relay: 100 million operations at signal level load.
- Allow the photo input signals to be completely floated and prevent the ground loops.
- Activation voltage: 0 to 20V.

0 to 1.5V : inactive. 3 to 20V : active.

• Supports terminal board and control SSR.

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### CHAPTER 2 UNPACKING INFORMATION

#### <u>Check that your PCI bus 4 channels relay output/photo</u> isolator input package includes the following items:

- PCI bus 4 channels relay output/photo isolator input board.
- PCI bus 4 channels relay output/photo isolator input terminal board (option).
- Demo Program.
- User manual.
- Warranty form.

### CHAPTER 3 HARDWARE INSTALLATION

Your PCI bus 4 channels relay output/photo isolator input adapter is designed to be inserted in any available PCI slot in your PC/486, Pentium or compatibles. In order to gain access to the expansion slots, follow the steps listed below:

- 1. Turn off all power to your computer and all peripheral devices before installing your 4 channels relay output/photo isolator input adapter.
- 2. Remove the cover of the computer.
- 3. Insert the 4 channels relay output/photo isolator input adapter into any available PCI slot. Make sure the adapter is firmly seated in the chosen slot.
- 4. Replace the cover of the computer.
- 5. Turn on the power of your computer, the PnP features will recognize the 4 channels relay output/photo isolator input adapter.

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### CHAPTER 4 HARDWARE CONFIGURATION

Before you use the 4 channels relay output/ photo couple input adapter, you must ensure that the I/O address. Observe the figure in the follows, the proper jumper settings for the 4 channels relay output/photo couple input adapter is described in the following.

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Put pc board layout of interface in here

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Put pcb layout of terminal board in here

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#### 1. I/O Address

The PnP feature will get base I/O address automatically, where

Base Address + 0:

Relay output channel 1 to 4

| 7 | 6 | 5 | 4 | 3   | 2   | 1   | 0   |
|---|---|---|---|-----|-----|-----|-----|
|   |   |   |   | RL4 | RL3 | RL2 | RL1 |

Base Address + 0:

Photo isolator input channel 1 to 4.

| 7   | 6   | 5   | 4   | 3 | 2 | 1 | 0 |
|-----|-----|-----|-----|---|---|---|---|
| IN4 | IN3 | IN2 | IN1 |   |   |   |   |

#### 2. Jumper Setting

| • | • | JP1A |
|---|---|------|
| • | • | JP1B |

| Jumper | Description                                 |
|--------|---------------------------------------------|
| Open   | Select opto+ and opto- Voltage Signal Input |
| Short  | No Voltage Input                            |

The JP1A and JP1B are used to select voltage signal of photo input channel 1, and the JP2A and JP2B are used to select voltage signal of photo input cannel 2, ... etc. When we open both jumpers, it means we use opto+ and opto- signals as input voltage. Otherwise, when the jumpers are short, it means we need not input voltage from opto+ and opto-; in this mode, when opto+ and opto- are shorted,

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the input signal is 1, when opto+ and opto- are open, the input signal is 0.

#### 3. DB25 Connector Assignments

| Pin | Description          |
|-----|----------------------|
| 1   | Ground               |
| 2   | Relay channel 1, COM |
| 3 4 | 12V                  |
| 4   | Relay channel 2, COM |
| 5   | 12V                  |
| 6   | Relay channel 3, COM |
| 7   | Ground               |
| 8   | Relay channel 4, COM |
| 9   | 12V                  |
| 10  | Opto channel 1, -    |
| 11  | Opto channel 2, -    |
| 12  | Opto channel 3, -    |
| 13  | Opto channel 4, -    |
| 14  | Relay channel 1, NC  |
| 15  | Relay channel 1, NO  |
| 16  | Relay channel 2, NC  |
| 17  | Relay channel 2, NO  |
| 18  | Relay channel 3, NC  |
| 19  | Relay channel 3, NO  |
| 20  | Relay channel 4, NC  |
| 21  | Relay channel 4, NO  |
| 22  | Opto channel 1, +    |
| 23  | Opto channel 2, +    |
| 24  | Opto channel 3, +    |
| 25  | Opto channel 4, +    |

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#### 4. Terminal Board

When the SSR is built in the terminal board, then you can short JP5A and JP5B to control SSR1, JP6A and JP6B to control SSR2, ... etc.

The signal assignment of TB1, TB2, and TB3 are shown in the following:

| TB   | Description          |
|------|----------------------|
| 1-01 | Opto channel 1, -    |
| 1-02 | Opto channel 1, +    |
| 1-03 | Opto channel 2, -    |
| 1-04 | Opto channel 2, +    |
| 1-05 | Opto channel 3, -    |
| 1-06 | Opto channel 3, +    |
| 1-07 | Opto channel 4, -    |
| 1-08 | Opto channel 4, +    |
| 2-01 | Relay channel 1, NC  |
| 2-02 | Relay channel 1, COM |
| 2-03 | Relay channel 1, NO  |
| 2-04 | Relay channel 2, NC  |
| 2-05 | Relay channel 2, COM |
| 2-06 | Relay channel 2, NO  |
| 2-07 | Relay channel 3, NC  |
| 2-08 | Relay channel 3, COM |
| 2-09 | Relay channel 3, NO  |
| 2-10 | Relay channel 4, NC  |
| 2-11 | Relay channel 4, COM |
| 2-12 | Relay channel 4, NO  |
| 3-01 | SSR1+                |
| 3-02 | SSR1-                |

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| SSR2+ |
|-------|
| SSR2- |
| SSR3+ |
| SSR3- |
| SSR4+ |
| SSR4- |
|       |

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### APPENDIX A WARRANTY INFORMATION

### A.1 Copyright

Copyright 1999. 2000 DECISION COMPUTER INTERNATIONAL CO., LTD. All rights reserved. No part of 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER software and manual may be reproduced, transmitted, transcribed, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of DECISION COMPUTER INTERNATIONAL CO., LTD.

Each piece of 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER package permits user to use 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER only on a single computer, a registered user may use the program on a different computer, but may not use the program on more than one computer at the same time.

Corporate licensing agreements allow duplication and distribution of specific number of copies within the licensed institution. Duplication of multiple copies is not allowed except through execution of a licensing agreement. Welcome call for details.

### A.2 Warranty Information

DECISION warrants that for a period of one year from the date of purchase (unless otherwise specified in the warranty card) that the goods supplied will perform according to the specifications defined in the user manual. Furthermore that the 4 CHANNELS RELAY

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OUTPUT/PHOTO ISOLATOR INPUT ADAPTER product will be supplied free from defects in materials and workmanship and be fully functional under normal usage.

In the event of the failure of an 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER product within the specified warranty period, DECISION will, at its option, replace or repair the item at no additional charge. This limited warranty does not cover damage resulting from incorrect use, electrical interference, accident, or modification of the product.

All goods returned for warranty repair must have the serial number intact. Goods without serial numbers attached will not be covered by the warranty.

Transportation costs for goods returned must be paid by the purchaser. Repaired goods will be dispatched at the expense of 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER.

To ensure that your 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER product is covered by the warranty provisions, it is necessary that you return the Warranty card.

Under this Limited Warranty, DECISION's obligations will be limited to repair or replacement only, of goods found to be defective as specified above during the warranty period. DECISION is not liable to the purchaser for any damages or losses of any kind, through the use of, or inability to use, the 4 CHANNELS RELAY OUTPUT/PHOTO ISOLATOR INPUT ADAPTER product.

DECISION reserves the right to determine what constitutes warranty repair or replacement.

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*Return Authorization*: It is necessary that any returned goods are clearly marked with an RA number that has been issued by DECISION. Goods returned without this authorization will not be attended to.

