PCI2325/PCI2325-A

User's Manual

Beijing ART Technology Development Co., Ltd.

Contents

Chapter 1 Overview

PCI2325 provides 4-CH SPDT (Form C) & 4-CH SPST (Form A) relay outputs and 8-CH isolated digital inputs. The status of each relay output is represented by an onboard LED. The devices are suitable for laboratory and industrial automation

The PCI2325-A is an 8-CH relay outputs and 8-CH isolated DI extension card of the PCI2325. All the I/O functions of PCI2325-A are the same as those of the PCI2325. The PCI2325-A has to be connected with PCI2325 and the bus interface is controlled by the PCI2325. Up to three PCI2325 cards can be connected to one PCI2325-A, therefore, expanding the PCI2325's DIO from 8 DIO to maximum 32 DIO.

Unpacking Checklist

Check the shipping carton for any damage. If the shipping carton and contents are damaged, notify the local dealer or sales for a replacement. Retain the shipping carton and packing material for inspection by the dealer.
Check for the following items in the package. If there are any missing items, contact your local dealer or sales.

- PCI2325 Data Acquisition Board
- ART Disk
  a) user's manual (pdf)
  b) drive
  c) catalog
- Warranty Card

FEATURES

Digital Input

- Input Channels: 8
- Maximum Input Range: 24V no polarity
- Digital Logic Level:
  Input high voltage: 5 ~ 24V
  Input low voltage: 0 ~ 2V
- Input Impedance: 1.2kΩ @ 0.5W
- Input Type: optical isolation
- Isolation Voltage: 5000Vrms

Digital Output

- Output Channels: 8
- Relay Type:
  Channel 0~3: SPDT normal open
  Channel 4~7: SPST normal open
- Isolation Voltage: 1000Vrms
- Contact Capacity:
  AC: 120V, 0.5A

DC: 24V, 1A

- Breakdown Voltage: 1000Vrms
- Contact Rsistance: 100mΩ
- Relay On/Off Time:

  Pick-up Time: 5ms

  Release Time: 5ms
- On-board relay status LED indicator

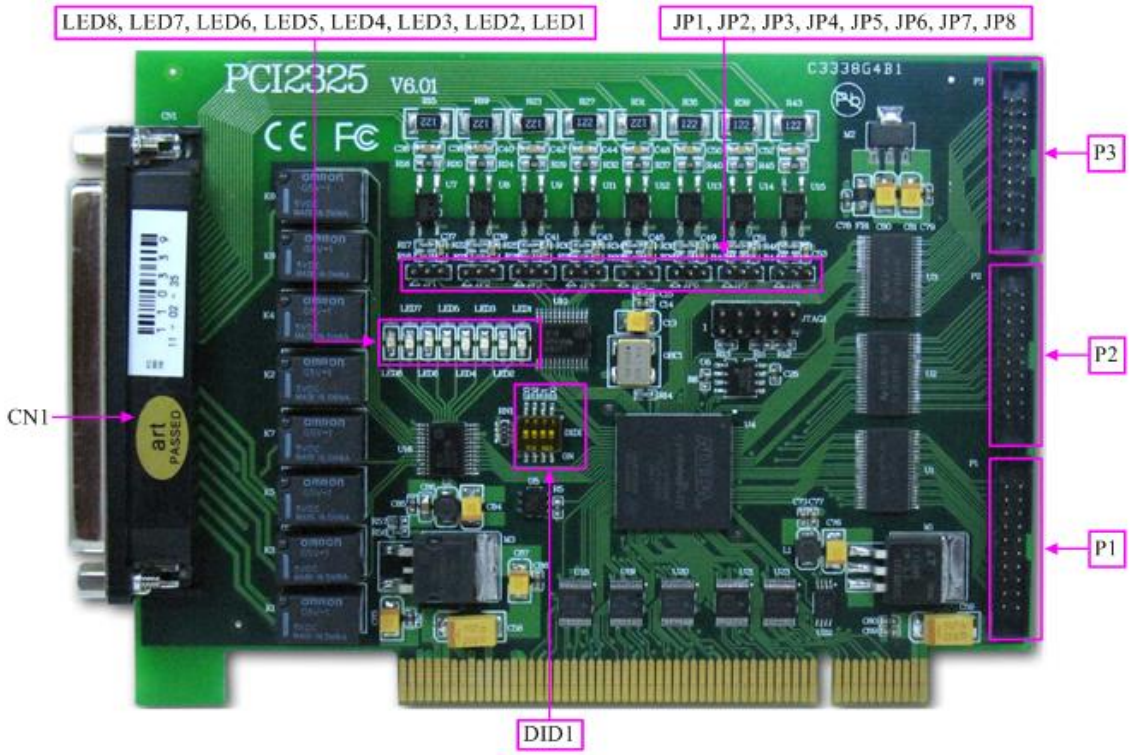
Board Dimension:

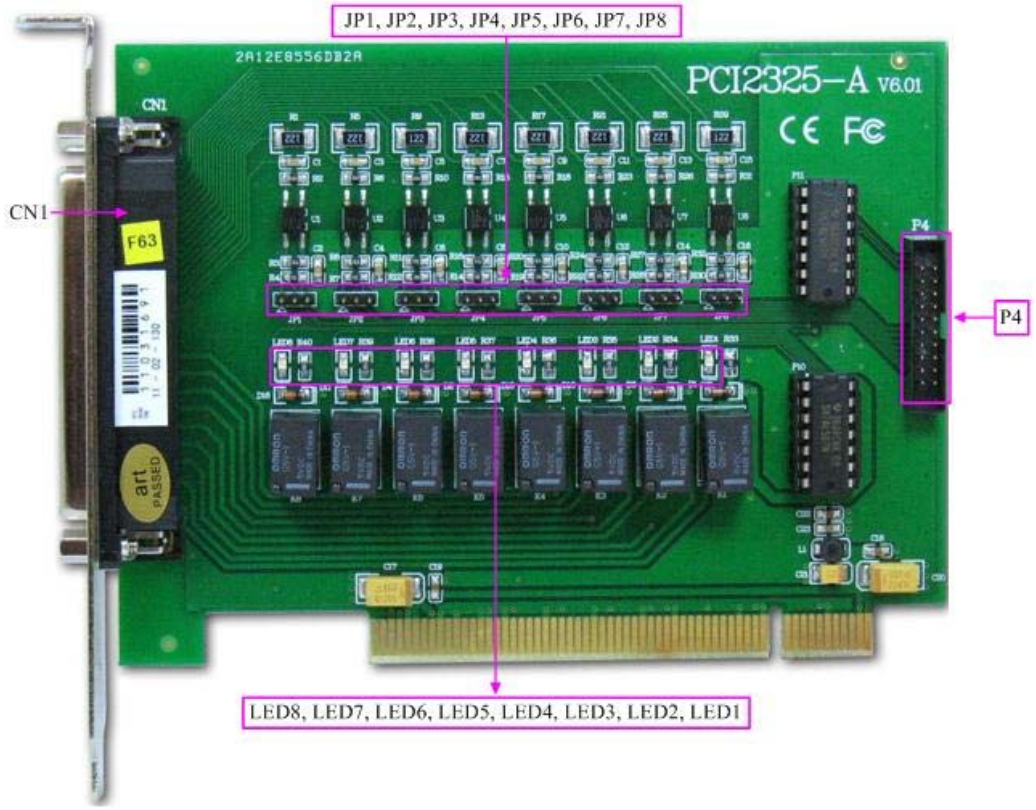
PCI2325: 133.5mm (L) *98mm (W)

PCI2325-A: 130mm (L) *98mm (W)

Chapter 2 Components Layout Diagram and a Brief Description

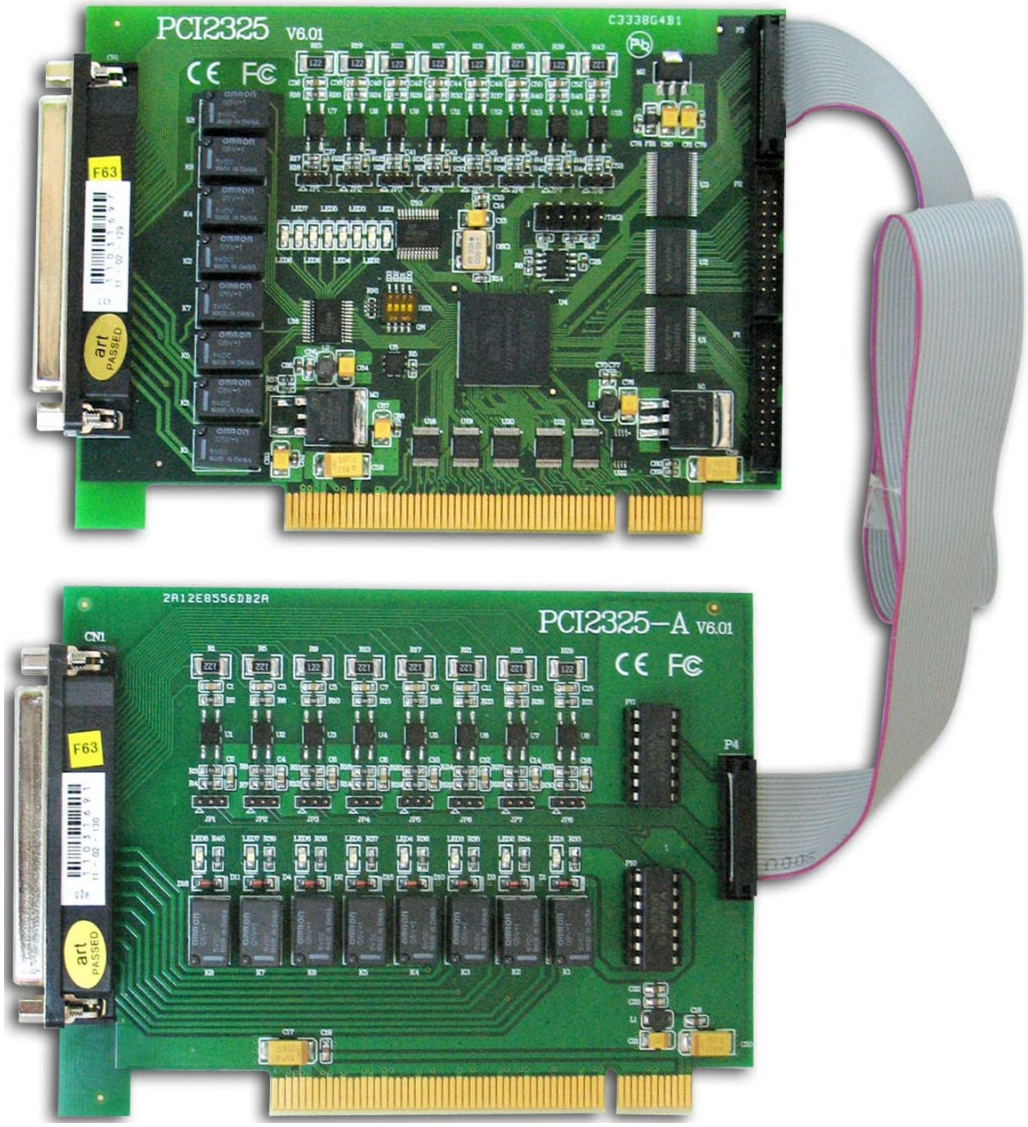
2.1 The Main Component Layout Diagram





2.2 PCI2325 and PCI2325-A Connection

The PCI2325-A is used as an expansion for the PCI2325, we can use 20p cable to connect it with the PCI2325. There can be at most 3 PCI2325-a expansion boards to one PCI2325. Therefore, the PCI2325 can control up to 32 relays and 32 input signals.



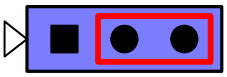
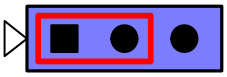
2.3 Interface Description

2.3.1 Signal Connector

CN1: PCI2325/PCI2325-A signal input and output connector
P1, P2, P3: external PCI2325-A connector
P4: PCI2325 connector

2.3.2 Signal Connector

JP1 ~ JP8: DI0 ~ DI8 digital input filter selection.

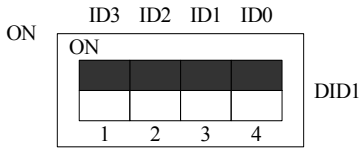
Filter Selection	**JP1(DI0)** **JP2(DI1)** **JP3(DI2)** **JP4(DI3)** **JP5(DI4)** **JP6(DI5)** **JP7(DI6)** **JP8(DI7)**
Filter	
Unfiltered	

2.3.3 Status Indicator

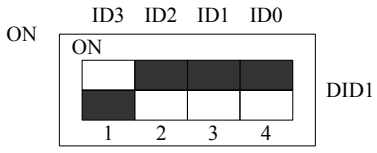
LED1 ~ LED8: 8 channel digital signal outputs state indicators. On for normal open, and off for normal closed.

2.3.4 Physical ID of DIP Switch

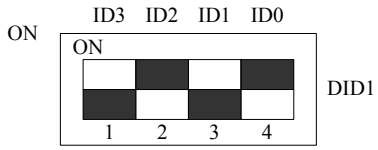
DID1: Set physical ID number. When the PC is installed more than one PCI2325 , you can use the DIP switch to set a physical ID number for each board, which makes it very convenient for users to distinguish and visit each board in the progress of the hardware configuration and software programming. The following four-place numbers are expressed by the binary system: When DIP switch points to "ON", that means "1", and when it points to the other side, that means "0." As they are shown in the following diagrams: place "ID3" is the high bit."ID0" is the low bit, and the black part in the diagram represents the location of the switch. (Test software of the company often use the logic ID management equipments and at this moment the physical ID DIP switch is invalid. If you want to use more than one kind of the equipments in one and the same system at the same time, please use the physical ID as much as possible.).



The above chart shows"1111", so it means that the physical ID is 15.



The above chart shows"0111", so it means that the physical ID is 7.



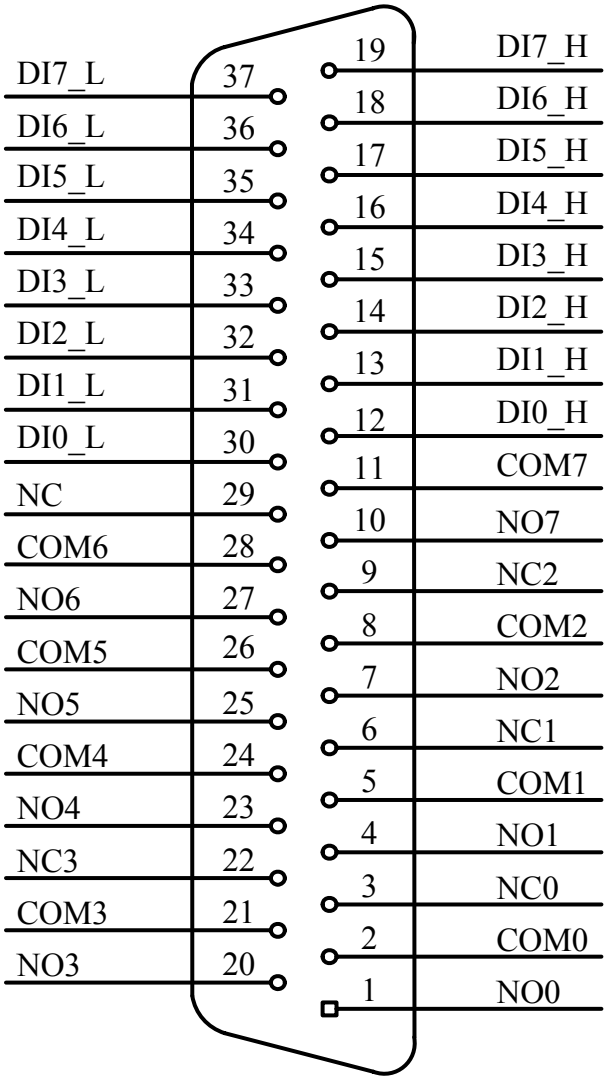
The above chart shows"0101", so it means that the physical ID is 5.

ID3	ID2	ID1	ID0	Physical ID（Hex）	Physical ID（Dec）
OFF（0）	OFF（0）	OFF（0）	OFF（0）	0	0
OFF（0）	OFF（0）	OFF（0）	ON（1）	1	1
OFF（0）	OFF（0）	ON（1）	OFF（0）	2	2
OFF（0）	OFF（0）	ON（1）	ON（1）	3	3
OFF（0）	ON（1）	OFF（0）	OFF（0）	4	4
OFF（0）	ON（1）	OFF（0）	ON（1）	5	5
OFF（0）	ON（1）	ON（1）	OFF（0）	6	6
OFF（0）	ON（1）	ON（1）	ON（1）	7	7
ON（1）	OFF（0）	OFF（0）	OFF（0）	8	8
ON（1）	OFF（0）	OFF（0）	ON（1）	9	9
ON（1）	OFF（0）	ON（1）	OFF（0）	A	10
ON（1）	OFF（0）	ON（1）	ON（1）	B	11
ON（1）	ON（1）	OFF（0）	OFF（0）	C	12
ON（1）	ON（1）	OFF（0）	ON（1）	D	13
ON（1）	ON（1）	ON（1）	OFF（0）	E	14
ON（1）	ON（1）	ON（1）	ON（1）	F	15

Chapter 3 Signal Connectors

3.1 The Definition of DI/DO Connectors

CN1: PCI2325 37-pin SCSI definition

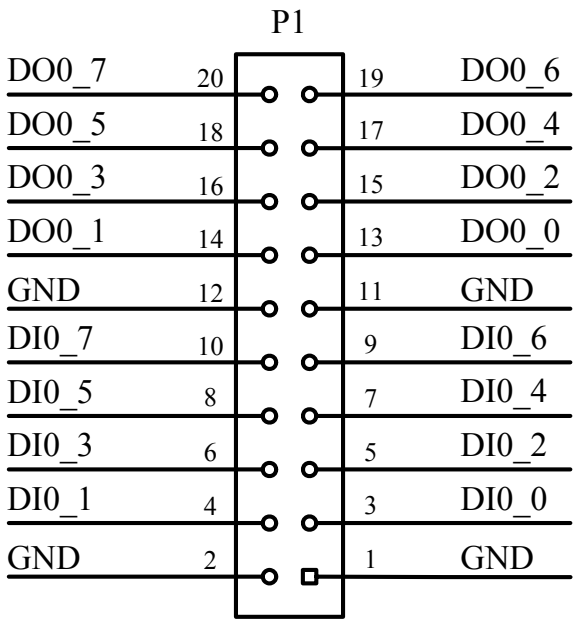


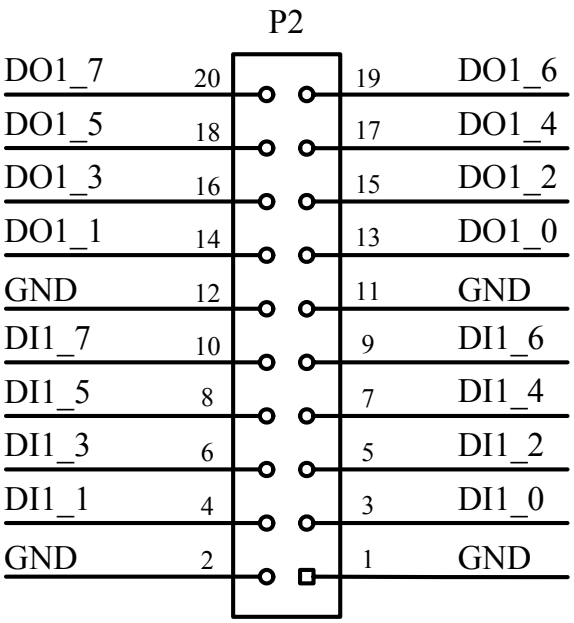
Pin definition

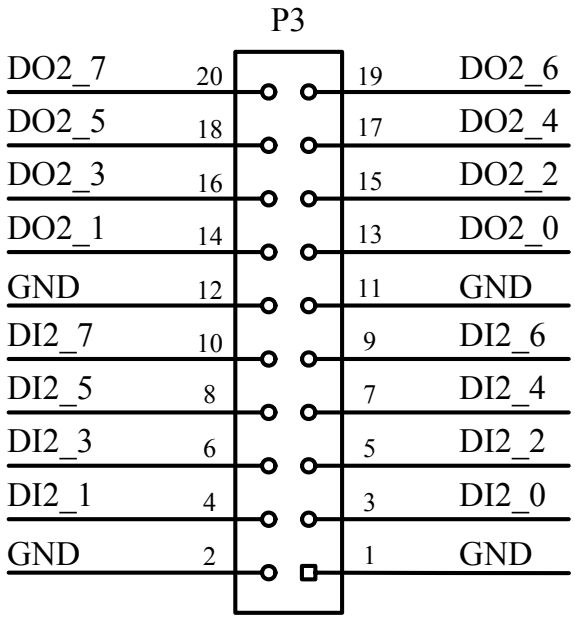
Signal Name	Type	Definition
NO0～NO7	Output	Normal open pin of relay 0~8.
COM0～COM7	Input	Common pin of relay 0~8.
NC0～NC3	Output	Normal close pin of relay 0~3.
DI0_H～DI7_H	Input	Digital input channel 0~8 with positive polarity
DI0_L～DI7_L	Input	Digital input channel 0~8 with negative polarity

3.2 The Expansion Board Connectors

3.2.1 PCI2325 Expansion Connector







P1 definition

Signal Name	Type	Definition
DI0_0～DI0_7	Input	8-channel expansion digital input.
DO0_0～DO0_7	Output	8-channel expansion digital output.
GND		Ground.

P2 definition

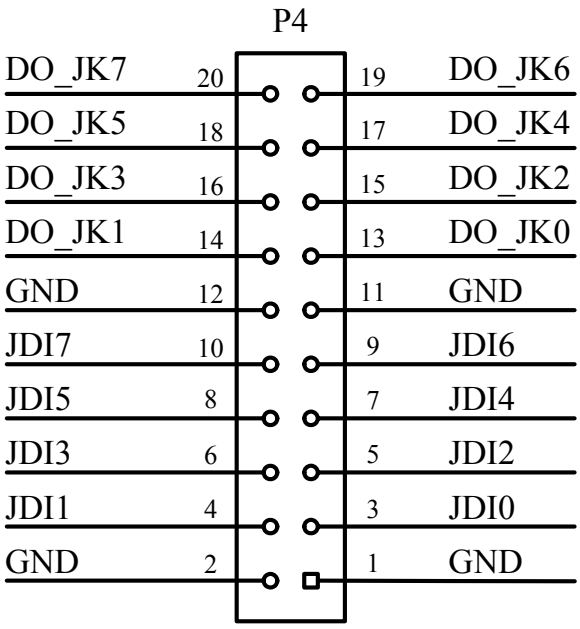
Signal Name	Type	Definition
DI1_0～DI1_7	Input	8-channel expansion digital input.
DO1_0～DO1_7	Output	8-channel expansion digital output.
GND		Ground.

P3 definition

Signal Name	Type	Definition
DI2_0～DI2_7	Input	8-channel expansion digital input.
DO2_0～DO2_7	Output	8-channel expansion digital output.
GND		Ground.

3.2.1 PCI2325-A Expansion Connector

P4: 20-pin definition



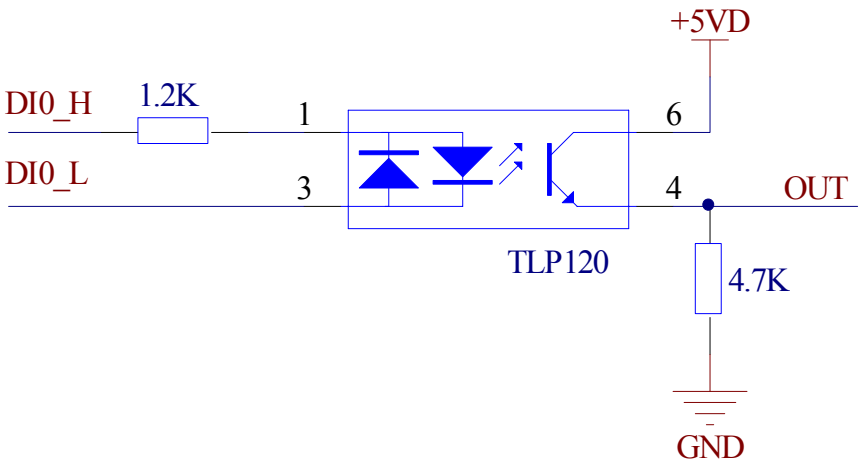
P4 definition

Signal Name	Type	Definition
JDI0～JDI7	Input	8-channel expansion digital input.
DO_JK0～DO_JK7	Output	8-channel expansion digital output.
GND		Ground.

Chapter 4 Input and Output Function

4.1 Input Principle and Wiring

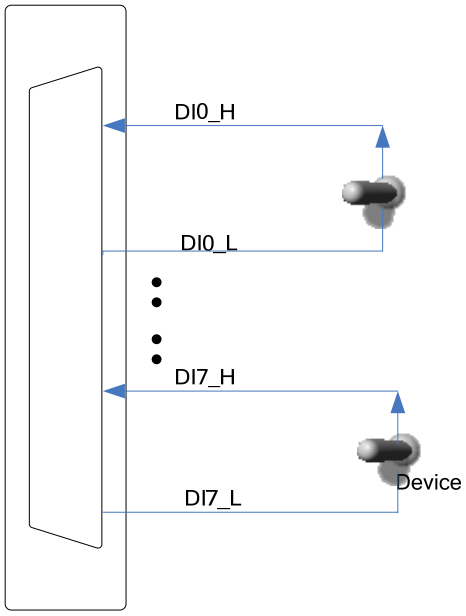
The PCI2325/PCI2325-A contains 8 identical opto-isolated control input channels. The circuit diagram of the differential input channel is shown below, take DI0 for example, the other channels are the same as DI0.



When DI0_L is ground, DI0_H inputs high-level, the opto-coupler turns on, the output signal OUT is high-level; DI0_H input low-level, the opto-coupler does not turn on, the OUT is low-level.

When the positive terminal of power supply connected with the DI0_L, DI0_H input low-level, the opto-coupler turns on, the output signal OUT is high-level; DI0_H input high-level, the opto-coupler does not turn, the OUT is low-level.

DI connection as follows



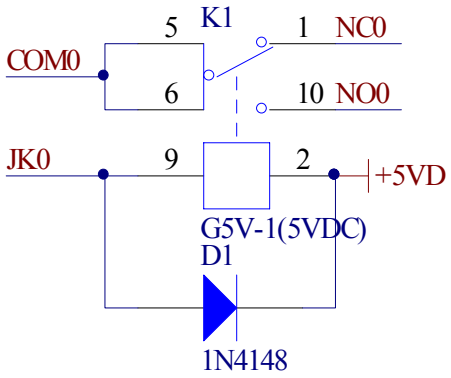
4.2 Output Principle and Wiring

The PCI2325/PCI2325-A contains two types of relays: Form C and Form A. Relays 0~3 are form C type, and 4~7 are form A type.

4.2.1 SPDT

Form C type relays have three contacts: NO (Normal Open), and COM (Common), NC (Normal Close). NO0~NO3 is normal open signal output of the channel 0~3, COM0~COM3 is common port, NC0~NC3 is normal close signal output of the channel 0~3.

Take relay 0 (PCI2325) for example, when select the relay 0 is ON, there is contact between the COM0 post and NO0 post. If select the relay 0 is OFF, there is contact between the COM0 post and NC0 post.

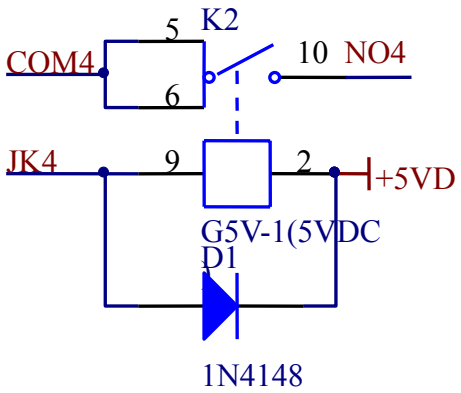


In normal, the relay is OFF, there is contact between the COM post and NC post.

4.2.2 SPST

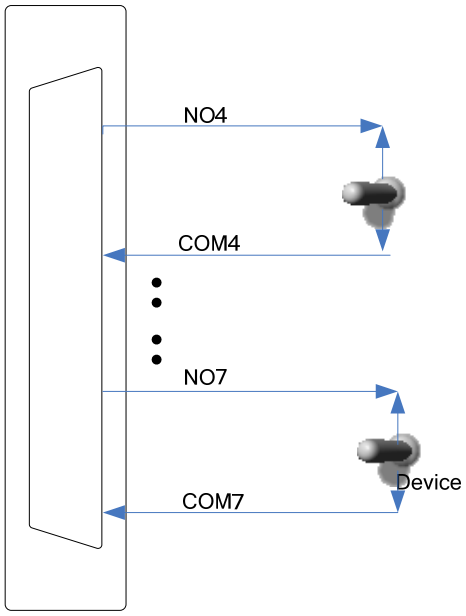
Form A relay only has two contacts: NO (Normal Open) and COM (Common). NO4~NO7 is normal open signal output of the channel 4~7, COM4~COM7 is common port.

Take relay 4 (PCI2325) for example:



When select the relay 4 is ON, there is contact between the COM4 post and NO4 post. If select the relay 4 is OFF, there is contact between the COM4 post and NC4 post.

Relay output wiring diagram is as following:



Chapter5 Notes and Warranty Policy

5.1 Notes

In our products' packing, user can find a user manual, a CI2325/PCI2325-A module and a quality guarantee card. Users must keep quality guarantee card carefully, if the products have some problems and need repairing, please send products together with quality guarantee card to ART, we will provide good after-sale service and solve the problem as quickly as we can.

When usingCI2325/PCI2325-A, in order to prevent the IC (chip) from electrostatic harm, please do not touch IC (chip) in the front panel of CI2325/PCI2325-A module.

5.2 Warranty Policy

Thank you for choosing ART. To understand your rights and enjoy all the after-sales services we offer, please read the following carefully.

1. Before using ART's products please read the user manual and follow the instructions exactly. When sending in damaged products for repair, please attach an RMA application form which can be downloaded from: www.art-control.com.
2. All ART products come with a limited two-year warranty:
   - The warranty period starts on the day the product is shipped from ART's factory
   - For products containing storage devices (hard drives, flash cards, etc.), please back up your data before sending them for repair. ART is not responsible for any loss of data.
   - Please ensure the use of properly licensed software with our systems. ART does not condone the use of pirated software and will not service systems using such software. ART will not be held legally responsible for products shipped with unlicensed software installed by the user.
3. Our repair service is not covered by ART's guarantee in the following situations:
   - Damage caused by not following instructions in the User's Manual.
   - Damage caused by carelessness on the user's part during product transportation.
   - Damage caused by unsuitable storage environments (i.e. high temperatures, high humidity, or volatile chemicals).
   - Damage from improper repair by unauthorized ART technicians.
   - Products with altered and/or damaged serial numbers are not entitled to our service.
4. Customers are responsible for shipping costs to transport damaged products to our company or sales office.
5. To ensure the speed and quality of product repair, please download an RMA application form from our company website.

Products Rapid Installation and Self-check

Rapid Installation

Product-driven procedure is the operating system adaptive installation mode. After inserting the disc, you can select the appropriate board type on the pop-up interface, click the button【driver installation】; or select CD-ROM drive in Resource Explorer, locate the product catalog and enter into the APP folder, and implement Setup.exe file. After the installation, pop-up CD-ROM, shut off your computer, insert the PCI card. If it is a USB product, it can be directly inserted into the device. When the system prompts that it finds a new hardware, you do not specify a drive path, the operating system can automatically look up it from the system directory, and then you can complete the installation.

Self-check

At this moment, there should be installation information of the installed device in the Device Manager (when the device does not work, you can check this item.). Open "Start -> Programs -> ART Demonstration Monitoring and Control System -> Corresponding Board -> Advanced Testing Presentation System", the program is a standard testing procedure. Based on the specification of Pin definition, connect the signal acquisition data and test whether AD is normal or not. Connect the input pins to the corresponding output pins and use the testing procedure to test whether the switch is normal or not.

Delete Wrong Installation

When you select the wrong drive, or viruses lead to driver error, you can carry out the following operations: In Resource Explorer, open CD-ROM drive, run Others-> SUPPORT-> PCI.bat procedures, and delete the hardware information that relevant to our boards, and then carry out the process of section I all over again, we can complete the new installation.