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CE notification

The MIC-3761, developed by ADVANTECH CO., LTD., has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

On-line Technical Support

For technical support and service, please visit our support website at:
http://www.advantech.com/support

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Contents

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CHAPTER 1

Introduction

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1. Introduction

Thank you for buying the Advantech MIC-3761. The Advantech MIC-3761 is an 8-ch relay actuator and 8-ch isolated digital input CompactPCI® (or abbreviated as cPCI) DA&C Card which complies with PICMG 2.0 R2.1 CompactPCI specification.

Its eight on-board SPDT relays are ideal for applications such as device ON/OFF control or small power switched. For easy monitoring, each relay is equipped with one LED to show its ON/OFF status.

The MIC-3761's eight optically isolated digital input channels are ideal for digital input in noisy environments or with floating potentials.

The following sections of this chapter will provide further information about features, installation guide, along with a brief introduction on software and accessories for the MIC-3761.

1.1 Features

- 8 relay output channels and 8 isolated digital input channels
- LED indicators to show activated relays
- 4 Form A-type and 4 Form C-type relay output channels
- Output status read-back
- Keep relay output values when hot system reset
- High-voltage isolation on input channels (3,750 V_{DC})
- High ESD protection (2,000 V_{DC})
- High over-voltage protection (70 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Interrupt handling capability
- Board ID

The Advantech MIC-3761 offers the following main features:

Robust Protection

The MIC-3761 digital input channels feature a robust isolation protection for industrial, lab and machinery automation applications. It durably withstands voltages up to 2,500 V_{DC}, preventing your host system from any incidental harms. If connected to an external input source with surge-protection, the MIC-3761 can offer protection up to a maximum of 2,000 V_{DC} ESD (Electrostatic Discharge). Even with an input voltage rising up to 70 V_{DC}, the MIC-3761 can still manage to work properly albeit only for short period of time.

Wide Input Range

The MIC-3761 has a wide range of input voltage from 10 to 50 V_{DC}, and it is suitable for most industrial applications with 12 V_{DC}, 24 V_{DC} and 48 V_{DC} input voltage.

Reset Protection Fulfills Requirement for Industrial Applications

When the system has undergone a hot reset (i.e. without turning off the system power), the MIC-3761 can either retain output values of each channel, or return to its default configuration as open status, depending on its on-board jumper setting. This function avoids the system from wrongfully operating during unexpected system resets.

Plug-and-Play Function

The MIC-3761 is a Plug-and-Play device, which fully complies with PICMG 2.0 R2.1 CompactPCI specifications. During card installation, there is no need to set jumpers or DIP switches. Instead, all bus-related configurations such as base I/O address and interrupt are automatically done through the Plug-and-Play function.

Board ID

The MIC-3761 has a built-in DIP Switch that help define each card's ID when multiple MIC-3761 cards have been installed on the same chassis. The board ID setting function is very useful when users build their

system with multiple MIC-3761 cards. With correct Board ID settings, you can easily identify and access each card during hardware configuration and software programming.

Note

For detailed specifications of the MIC-3761, please refer to *Appendix A, Specifications.*

1.2 Applications

- Industrial ON/OFF control
- Switch status sensing
- Digital I/O control
- Industrial and lab automation
- SMT/PCB machinery
- Semi-conductor machinery
- PC-based Industrial Machinery
- Testing & Measurement
- Laboratory & Education
- External relay driving

1.3 Installation Guide

Before you install your MIC-3761 card, please make sure you have the following necessary components:

- **MIC-3761 card**
- **MIC-3761 User's Manual**
- **Driver software** Advantech DLL drivers (included in the companion CD-ROM)
- **Wiring cable** PCL-10137 (option)
- **Wiring board** PCLD-880, ADAM-3937 (option)
- **Computer** Chassis or workstation with a CompactPCI-bus slot (running Windows 95/98/NT/2000/XP)

Some other optional components are also available for enhanced operation:

- **Application software** ActiveDAQ, GeniDAQ or other third-party software packages

Once you have gathered the necessary components and accessories, you can then begin the Installation procedures. *Figure 1-1* on the next page provides a concise flow chart to give users a broader picture of the software and hardware installation procedures:

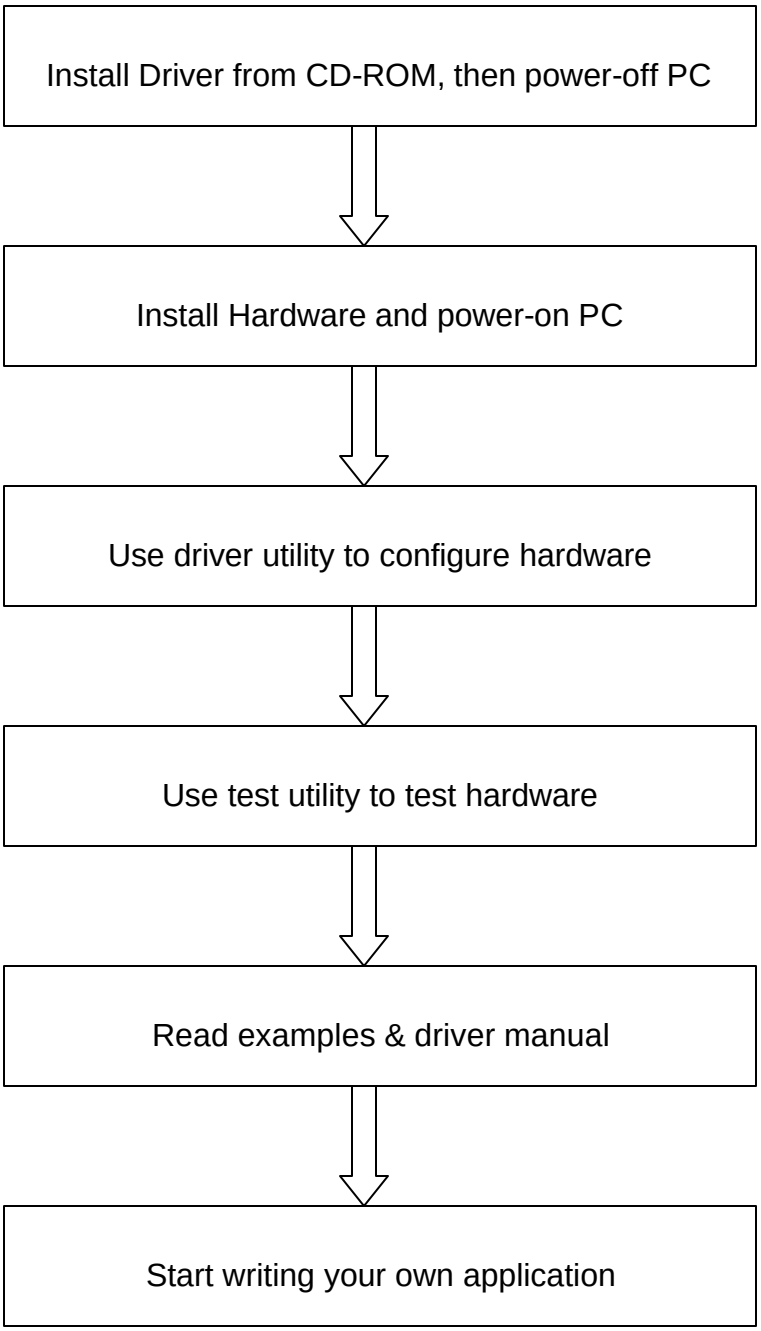

Fig. 1-1 Installation Flow Chart

1.4 Software Overview

Advantech offers a rich set of DLL drivers, third-party driver support and application software to fully exploit the functions of your MIC-3761 card:

- DLL driver (on the companion CD-ROM)
- LabVIEW driver
- Advantech ActiveDAQ
- Advantech GeniDAQ

Programming choices for DA&C cards: You may use Advantech application software such as Advantech DLL driver. Though not recommended due to its laborious and time-consuming nature, advanced users can use register-level programming.

DLL Driver

The Advantech DLL Drivers software is included in the companion CD-ROM at no extra charge. It also comes with Advantech DA&C cards. Advantech's DLL driver features a complete I/O function library to help boost your application performance. The Advantech DLL driver for Windows 98/NT/2000/XP works seamlessly with development tools such as Visual C++, Visual Basic, Borland C++ Builder and Borland Delphi.

Register-level Programming

Register-level programming is reserved for experienced programmers who find it necessary to write codes directly at the device registers level. Since register-level programming requires effort and time, we recommend that you use the Advantech DLL drivers instead. However, if register-level programming is indispensable, you should refer to the relevant information in *Appendix C, Register Structure and Format*, or to the example codes included in the companion CD-ROM.

1.5 DLL Driver Programming Roadmap

This section will include a roadmap to demonstrate how an application is built from scratch using Advantech *Device Drivers* with your favorite development tools such as Visual C++, Visual Basic, Delphi and C++ Builder. The step-by-step instructions on how to build your own applications using each development tool will be given in the *Device Drivers Manual.* Moreover, a rich set of example source code is also given for your reference.

Programming Tools

Programmers can develop application programs with their favorite development tools:

- Visual C++
- Visual Basic
- Delphi
- C++ Builder

For instructions on how to begin programming works in each development tool, Advantech offers a *Tutorial* Chapter in the *Device Drivers Manual* for your reference. Please refer to the corresponding sections in this chapter on the *Device Drivers Manual* to begin your programming efforts. To familiarize yourself with these tools, you can also look at the example source code provided for each programming tool.

The *Device Drivers Manual* can be found on the companion CD-ROM. Alternatively, if you have already installed the *Device Drivers* on your system, The *Device Drivers Manual* can be readily accessed through the ***Start*** button:
Start/ Programs/ Advantech Automation/ Device Manger/ Device Driver's Manual

The example source code can be found under the corresponding installation folder such as the default installation path:
\Program Files\Advantech\ADSAPI\Examples

Programming with Device Drivers Function Library

Advantech Device Drivers offer a rich function library that can be utilized in various application programs. This function library consists of numerous APIs that support many development tools, such as Visual C++, Visual Basic, Delphi and C++ Builder.

According to their specific functions or services, those APIs can be categorized into several function groups:

- Digital Input/Output Function Group
- Counter Function Group
- Port Function Group (direct I/O)
- Event Function Group

For the usage and parameters of each function, please refer to the *Function Overview* chapter in the *Device Drivers Manual.*

Troubleshooting Device Drivers Error

Driver functions will return a status code when they are called to perform a certain task for the application. When a function returns a code that is not zero, it means the function has failed to perform its designated function. To troubleshoot the *Device Drivers* error, you can pass the error code to **DRV_GetErrorMessage** function to return the error message. Alternatively, you can refer to the *Device Drivers Error Codes* Appendix in the *Device Drivers Manual* for a detailed listing of Error Codes, Error IDs and the Error Messages.

1.6 Accessories

Advantech offers a complete set of accessory products to support the MIC-3761 card. These accessories include:

Wiring Cable

- **PCL-10137** The PCL-10137 shielded cable is specially designed for MIC-3761 cards to provide high resistance to noise. To achieve a better signal quality, the signal wires are twisted in such a way as to form a "twisted-pair cable", reducing cross-talk and noise from other signal sources. Furthermore, its analog and digital lines are separately sheathed and shielded to neutralize EMI/EMC problems.

Wiring Boards

- **ADAM-3937** The ADAM-3937 is a 37-pin D-type wiring terminal module for DIN-rail mounting. This terminal module can be readily connected to the Advantech PC-Lab Cards and allow easy yet reliable access to individual pin connections for the MIC-3761 card.
- **PCLD-880** The PCLD-880 is a universal screw-terminal board to be used with any of the PC-Lab Cards which have 37-pin D-type connectors.

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CHAPTER 2

Installation

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2. Installation

This chapter provides a package item checklist, proper instructions about unpacking, and step-by-step procedures for both driver and card installation.

2.1 Unpacking

After receiving your MIC-3761 package, please inspect its contents first. The package should contain the following items:

☑ MIC-3761 card

☑ Companion CD-ROM (DLL driver included)

☑ User's Manual

The MIC-3761 card harbors certain electronic components vulnerable to *electrostatic discharge* (ESD). ESD can easily damage the integrated circuits and certain components if preventive measures are not carefully paid attention to.

Before removing the card from the antistatic plastic bag, you should take the following precautions to ward off possible ESD damage:

- Touch the metal part of your computer chassis with your hand to discharge static electricity accumulated on your body. Or one can also use a grounding strap.
- Touch the anti-static bag to a metal part of your computer chassis before opening the bag.
- Take hold of the card only by the metal bracket when removing it out of the bag.

Once the box is opened, you should first:

- Inspect the card for any possible signs of external damage (loose or damaged components, etc.). If the card is visibly damaged, please notify our service department or our local sales representative immediately. Avoid installing a damaged card into your system.

Also pay extra caution to the following aspects to ensure proper installation:

- Avoid physical contact with materials that hold static electricity such as plastic, vinyl and Styrofoam.
- Whenever you handle the card, grasp it by its edges. DO NOT TOUCH the exposed metal pins of the connector or the electronic components.

Note

Keep the anti-static bag for future use. You might need the original bag to store the card if you have to remove the card from PC or transport it elsewhere.

2.2 Driver Installation

We recommend you to install the driver before you install the MIC-3761 into your system, since this will guarantee a smooth installation process.

The Advantech *Device Drivers Setup* program for the MIC-3761 is included in the companion CD-ROM that is shipped with your DA&C module package. Please follow the steps below to install the driver software:

Step 1: Insert the companion CD-ROM into your CD-ROM drive.

Step 2: The Setup program will be launched automatically if you have the autoplay function enabled on your system. When the Setup Program is launched, you will see the Setup Screen as *Fig. 2-1*.

Note

If the autoplay function is not enabled on your computer, use Windows Explorer or Windows ***Run*** command to execute AUTORUN.EXE on the companion CD-ROM.

Fig. 2-1 Advantech Automation Software Setup Screen

Step 3: Select the *Individual Drivers* option, you will see a screen shows various options of product series (*Fig.2-2*). Select the *CompactPCI Series*.

Step 4: Select the specific device then follow the step by step installation instructions to complete your device driver installation and setup (*Fig. 2-3*).

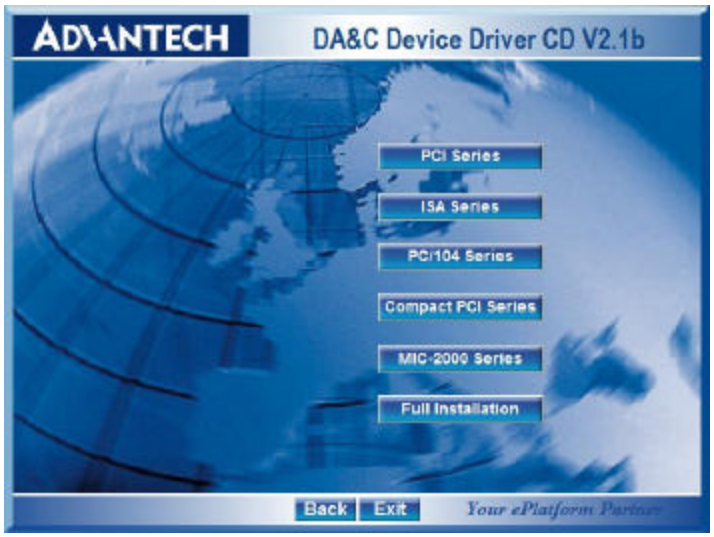

Fig. 2-2 Various options for product series

Fig. 2-3 Various options for Driver Setup

For further information on driver-related issues, an online version of the *Device Driver's Manual* is available through the following path:
Start/ Program Files/ Advantech Automation/ Device Manager/ Device Driver's Manual

2.3 Hardware Installation

Note

Make sure you have installed the driver first before you install the card (please refer to *2.2 Driver Installation*)

After the DLL driver installation is completed, you can now install the MIC-3761 card in any cPCI slot on your computer. But it is highly recommended that you refer to the user's manual or related documentation if you have any doubt. Please follow these steps to install the card on your system.

To install a card:

Step 1: Remove the cover from the unused slot of your cPCI computer slot.

Step 2: Hold the Card Vertically. Be sure that the card is pointing in the correct direction. The components of the card should be point to the right-hand side and the black handle of the card should be point to the lower edge of the chassis.

Step 3: While holding the lower handle, pull the handle down to unlock it.

Step 4: Carefully insert the MIC-3761 card into the cPCI chassis by sliding the lower edges of the card into the card guides.

Step 5: Gently slide the card along the card guide until J1 meets the long needle on the backplane.

Note

If your card is correctly positioned and has slid all the way into the chassis, the handle should match the rectangular holes. If not, remove the card from the card guide and repeat **Step 3** again. Do not try to install a card by forcing it into the chassis.

Step 6: Push the card into the right place; secure the card by pushing the handle on to lock it into place.

Note

The **Blue LED** on the front panel details the installation status of the card while the system is on.

In **Step 5**, when J1 meets the long needle on the backplane, **Blue LED** will light; after **Sep 6**, the system can configure the card automatically, and the **Blue LED** is turned off when the system finished the device configuration.

If the system power is off, you can install the card step by step without attending **Blue LED**'s state.

To remove a card:

Step 1: Push the handle down to unlock the card, then the cPCI system will automatically uninstall the card configuration.

Step 2: Once the system finished the device configuration, the **Blue LED** on the front panel will turn on. Now you can slide the card out.

Note 1

Advantech MIC-3761's "Hot-Swap" function complies with cPCI Hot Swap Specification PICMG 2.1 R2.0.

Note 2

Because of the "Hot-Swap", the above steps detail the card removal process while the system is on.

If the system power is off, please follow **Step1** and **Step2** and disregard the status of the **Blue LED**.

2.4 Device Setup & Configuration

The *Device Installation* program is a utility that allows you to set up, configure and test your device, and later stores your settings on the system registry. These settings will be used when you call the APIs of Advantech 32-bit DLL drivers.

Setting Up the Device

Step 1: To install the I/O device for your module, you must first run the *Device Installation* program (by accessing ***Start/ Program Files/ Advantech Automation/ Advantech Device Manager).***

Step 2: You can then view the device(s) already installed on your system (if any) on the *Installed Devices* list box. Since you have not installed any device yet, you might see a blank list such as the one below (*Fig. 2-4*).

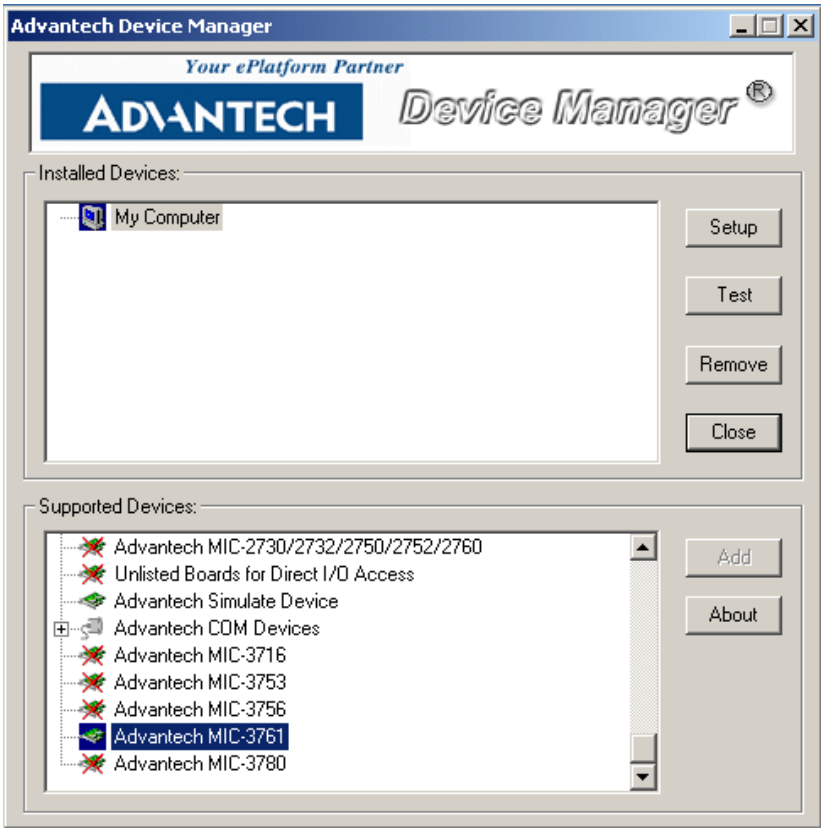

Fig. 2-4 The Device Manager dialog box

Step 3: Scroll down the *List of Devices* box to find the device that you wish to install, and then click the ***Add…*** button.

For more information about the MIC-3761 device configuration; please refer to the *Device Driver's Manual* accessed through the ***Start*** button: ***Start/ Program Files/ Advantech Automation/ Device Manger/ Device Driver's Manual***

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CHAPTER 3

Signal Connections

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3. Signal Connections

3.1 Overview

Maintaining signal connections is one of the most important factors in ensuring that your application system is sending and receiving data correctly. A good signal connection can avoid unnecessary and costly damage to your PC and other hardware devices. This chapter provides useful information about how to connect input and output signals to the MIC-3761 via the I/O connector.

3.2 Switch and Jumper Settings

The MIC-3761 card has one function switch settings. The jumper location and setting please refer to the figure (*Fig.3-1*) below and *Table 3-1*.

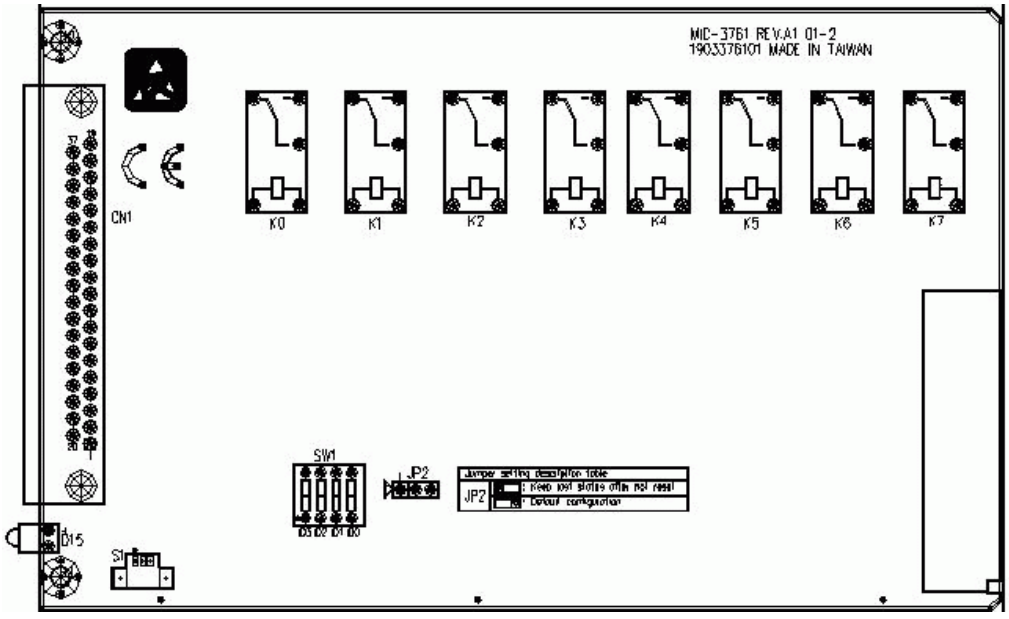

Fig. 3-1 Card connector, jumper and switch locations

Table 3-1 Summary of jumper settings

Names of Jumpers	Function description	
JP2		Keeps last status after hot reset.
		Default configuration.

Setting the time to reset the relay outputs

Some users will want the capability of clearing each relay output when the system issues a reset signal on the cPCI bus. Some users will want to clear their relays only as part of system power-on. The MIC-3761 satisfies both these needs by providing jumper JP2. Depending on the application, this capability may allow relay outputs to be "OFF" without requiring a complete shutdown of processes controlled by the card.

Complete loss of power to the chip clears the chip memory. Thus, no matter how JP2 is set, if the power to the MIC-3761 is disconnected, the relay initial power-on state will be "OFF" (NC or NO, depending on the user's settings).

3.3 I/O Connector

Pin Assignments

Figure 3-2 shows the pin assignments for the 37-pin I/O connector on the MIC-3761.

Description of pin use:

IDInA* (n=0 ~ 7):
Isolated digital input A
IDInB* (n=0 ~ 7):
Isolated digital input B
Rn_NO(n=0 ~ 7):
Normally Open pin of relay output
Rn_NC(n=0 ~ 7):
Normally Close pin of relay output
Rn_COM(n=0 ~ 7):
Common pin of relay output

Note
Isolated Digital Input is bi-direction.

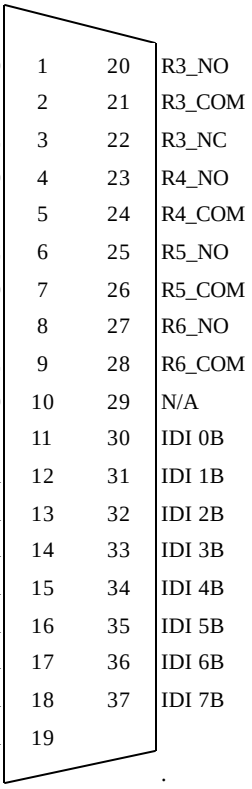

Fig. 3-2 I/O connector pin assignments for the MIC-3761

3.4 Isolated Digital Input Connections

The MIC-3761 has 8 isolated digital input channels designated IDI0~IDI7.

Each of isolated digital input channel accepts 10~50 V_{DC} voltage inputs, and accept bi-directional input. It means that you can apply positive or negative voltage to an isolated input pin (V_{in}). The figure below shows how to connect an external input source to one of the card's isolated input channels

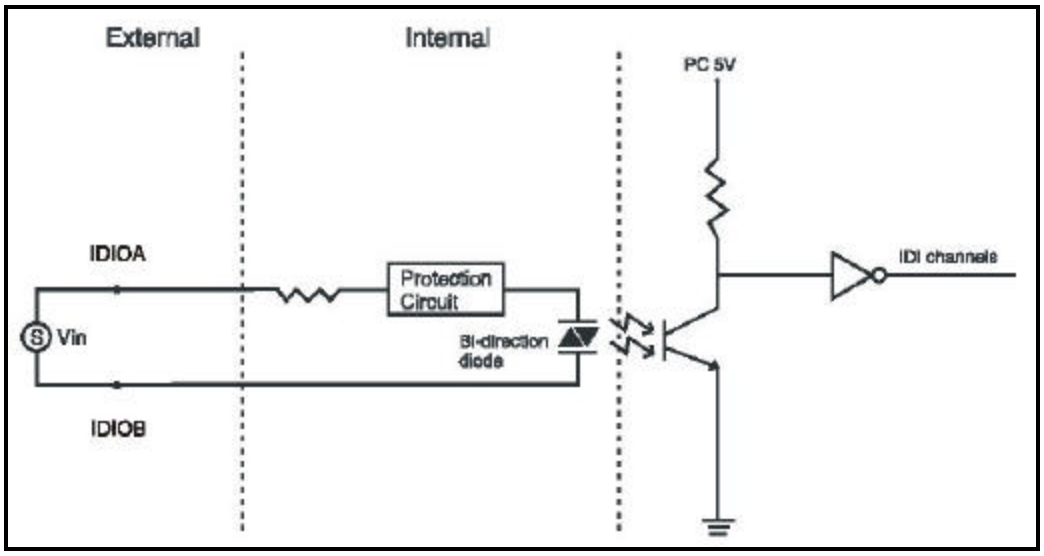

Fig. 3-3 Isolated digital input connections

3.5 Relay Connections

After power on, the initial relay output status of MIC-3761 is shown as below:

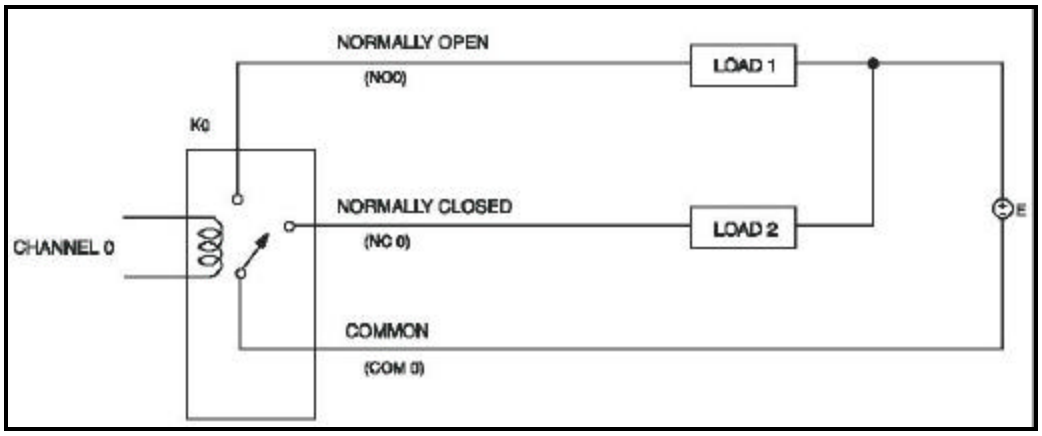

Fig. 3-4 Relay output connection

A write operation to I/O address, BASE +0, will change the output status of each relay. For example, if Bit 0 of BASE +0 is set "1" (logic high), relay 0, K0, will switch from position "NORMALLY CLOSED", R0_NC, to position "NORMALLY OPEN", R0_NO. This means that LOAD2 will be de-energized, while LOAD1 is energized.

To summarize, the "COMMON" line connect to the "NORMALLY CLOSED" line, if the corresponding bit is set as 0 (power-on initial status). Otherwise, if the corresponding bit is set as 1, then the "COMMON" line will connect to the "NORMALLY OPEN" line.

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Appendixes

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Appendix A. Specifications

Isolated Digital Input

Number of Input Channel	8	
Optical Isolation	3750 V_{DC}	
Opto-isolator response time	25μs	
Over-voltage Protect	70 V_{DC}	
Input Voltage	VIH (max.)	50 V_{DC}
	VIH (min.)	10 V_{DC}
	VIL (max.)	3 V_{DC}
Input Current	10 V_{DC}	1.6 mA (typical)
	12 V_{DC}	1.9 mA (typical)
	24 V_{DC}	4.1 mA (typical)
	48 V_{DC}	8.5 mA (typical)
	50 V_{DC}	8.9 mA (typical)

Relay Output

Number of Output Channel	8	
Relay Type	SPDT (4 Form C and 4 Form A)	
Rating (resistive)	3 A* 250 V_{AC} or 3 A* 24 V_{DC}	
Max. Switching Power	750 AV, 72 W	
Max. Switching Voltage	250 V_{AC}, 24 V_{DC}	
Max. Switching Current	3 A	
Min. Switching Load	10mA 5V_{DC}	
Breakdown Voltage	5,000 V_{AC} for 1 min. (Between coil and contacts)	
Operate time	15 ms max.	
Release time	5 ms max.	
Insulation Resistance	1,000 MΩ min. (at 500 V_{DC})	
Life	Mechanical	2×10^7 ops. min.
	Electrical	1×10^5 ops. min. (Contact Rating)

Note

The current was limited by the cable and wiring terminal board.

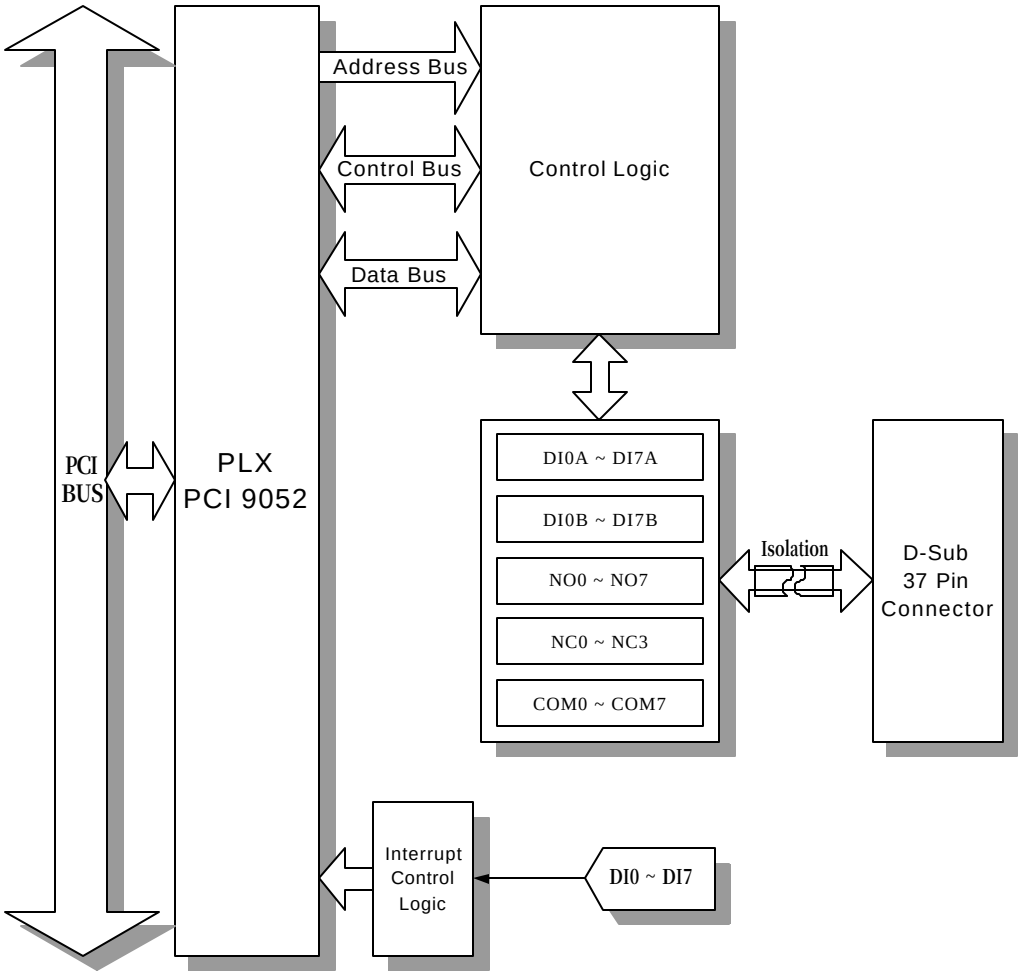
For detailed relay specification, please refer to CD-ROM:

\Document\MIC-3761_Relay_Spec.pdf.

General:

I/O Connector Type	37-pin D-type female	
Dimensions	175 mm x 100 mm (6.9” x 3.9”)	
Power Consumption	+5V @220 mA (typical) +5V @750 mA (max.)	
Temperature	Operation	0 ~ +60 °C (32 ~ 140 °F) (refer to IEC 68-2-1,2)
	Storage	-20 ~ +70 °C (-4 ~ 158 °F)
Relative Humidity	5 – 95 % RH non-condensing (refer to IEC 68-2-3)	
Certification	CE Class A certified	

Appendix B. Block Diagram



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Appendix C. Register Structure and Format

C.1 Overview

The MIC-3761 is delivered with an easy-to-use 32-bit DLL driver for user programming under the Windows 98/NT/2000/XP operating system. We advise users to program the MIC-3761using the 32-bit DLL driver provided by Advantech to avoid the complexity of low-level programming by register.

The most important consideration in programming the MIC-3761 the register level is to understand the function of the card's registers. The information in the following sections is provided only for users who would like to do their own low-level programming.

C.2 I/O Port Address Map

The MIC-3761 requires 32 consecutive addresses in the PC's I/O space. The address of each register is specified as an offset from the card's base address. For example, BASE+0 is the card's base address and BASE+7 is the base address plus seven bytes.

The *Table C-1* shows the function of each register of the MIC-3761 or driver and its address relative to the card's base address.

Table C-1 MIC-3761 register format

Base Addr. +HEX		7	6	5	4	3	2	1	0
0H	R	**Relay Output Status**							
		RS7	RS6	RS5	RS4	RS3	RS2	RS1	RS0
	W	**Relay Output**							
		RO7	RO6	RO5	RO4	RO3	RO2	RO1	RO0
1H	R	**Isolated Digital Input**							
		IDI7	IDI6	IDI5	IDI4	IDI3	IDI2	IDI1	IDI0
	W	**N/A**							
2H	R	**Board ID Register**							
						BD3	BD2	BD1	BD0
	W	**N/A**							
3H	R	**Interrupt Enable Status**							
		ID7EN	ID6EN	ID5EN	ID4EN	ID3EN	ID2EN	ID1EN	ID0EN
	W	**Interrupt Enable Register**							
		ID7EN	ID6EN	ID5EN	ID4EN	ID3EN	ID2EN	ID1EN	ID0EN
4H	R	**Interrupt Triggering Status**							
		ID7RF	ID6RF	ID5RF	ID4RF	ID3RF	ID2RF	ID1RF	ID0RF
	W	**Interrupt Triggering Register**							
		ID7RF	ID6RF	ID5RF	ID4RF	ID3RF	ID2RF	ID1RF	ID0RF
5H	R	**Interrupt Flag**							
		ID7F	ID6F	ID5F	ID4F	ID3F	ID2F	ID1F	ID0F
	W	**Interrupt Clear Register**							
		ID7CLR	ID6CLR	ID5CLR	ID4CLR	ID3CLR	ID2CLR	ID1CLR	ID0CLR

C.3 Relay I/O Registers — BASE+0H

The MIC-3761 offers 8-ch relay Actuators. These I/O channels use the input and output ports at addresses **BASE+0H**.

Table C-2 Register for relay output status

Read	**Relay Output Status**							
Bit #	7	6	5	4	3	2	1	0
BASE + 0H	RS7	RS6	RS5	RS4	RS3	RS2	RS1	RS0

Table C-3 Register for relay output

Write	**Relay Output**							
Bit #	7	6	5	4	3	2	1	0
BASE + 0H	RO7	RO6	RO5	RO4	RO3	RO2	RO1	RO0

Note

The default configuration of the digital output channels is a logic 0.

This avoids damaging external devices during system start-up or reset since the power on status is set to the default value.

C.4 Isolated Digital Input Registers — BASE+1H

The MIC-3761 offers 8-ch isolated digital input channels. These channels use the input ports at addresses BASE+1H.

Table C-4 Register for isolated digital input

Read	**Isolated Digital Input**							
Bit #	7	6	5	4	3	2	1	0
BASE + 1H	IDI7	IDI6	IDI5	IDI4	IDI3	IDI2	IDI1	IDI0

C.5 Board ID — BASE+2H

The MIC-3761 offers Board ID register BASE+2H. With correct Board ID settings, user can easily identify and access each card during hardware configuration and software programming.

Table C-5 Register for Board ID

Read	**Board ID**							
Bit #	7	6	5	4	3	2	1	0
BASE + 2H					BD3	BD2	BD1	BD0

BD3 ~ DB0 Board ID

BD0 LSB of the Board ID

BD3 MSB of the Board ID

C.6 Interrupt Status Register — BASE+3H/4H/5H

The ***Interrupt Status Register*** control the status of two interrupt signal sources (IDI0 and IDI8).

Table C-6 Register for interrupt status

Read	**Interrupt Status Register**							
Bit #	7	6	5	4	3	2	1	0
BASE + 3H	ID7RF	ID6RF	ID5RF	ID4RF	ID3RF	ID2RF	ID1RF	ID0RF
BASE + 4H	ID7EN	ID6EN	ID5EN	ID4EN	ID3EN	ID2EN	ID1EN	ID0EN
BASE + 5H	ID7F	ID6F	ID5F	ID4F	ID3F	ID2F	ID1F	ID0F

ID*n*F **Interrupt flag bits (*n* = 0 ~ 7)**

This bit is a flag indicating the status of an interrupt. User can read this bit to get the status of the interrupt

0 No interrupt

1 Interrupt occurred

ID*n*EN **Interrupt enable control bits (*n* = 0 ~ 7)**

Read this bit to Enable/Disable the interrupt.

0 Disable

1 Enable

ID*n*RF **Interrupt triggering control bits (*n* = 0 ~ 7)**

The interrupt can be triggered by a rising edge or falling edge of the interrupt signal, as determined by the value in this bit.

0 Rising edge trigger

1 Falling edge trigger

C.7 Interrupt Control Register — BASE+3H/4H/5H

The ***Interrupt Control Register*** control the status of two interrupt signal sources (IDI0 ~ IDI7). The user can clear the interrupt by writing its corresponding value to the ***Interrupt Control Register***, as shown in below table.

Table C-7 Register for interrupt control

Write	Interrupt Control Register							
Bit #	7	6	5	4	3	2	1	0
BASE + 3H	ID7RF	ID6RF	ID5RF	ID4RF	ID3RF	ID2RF	ID1RF	ID0RF
BASE + 4H	ID7EN	ID6EN	ID5EN	ID4EN	ID3EN	ID2EN	ID1EN	ID0EN
BASE + 5H	ID7CLR	ID6CLR	ID5CLR	ID4CLR	ID3CLR	ID2CLR	ID1CLR	ID0CLR

ID*n*CLR **Interrupt clear control bits (*n* = 0 ~ 7)**

This bit must first be cleared to service the next interrupt.

0 Don't care

1 Clear the interrupt

ID*n*EN **Interrupt enable control bits (*n* = 0 ~ 7)**

Read this bit to Enable/Disable the interrupt.

0 Disable

1 Enable

ID*n*RF **Interrupt triggering control bits (*n* = 0 ~ 7)**

The interrupt can be triggered by a rising edge or falling edge of the interrupt signal, as determined by the value in this bit.

0 Rising edge trigger

1 Falling edge trigger