# PCI-1758UDIO

## 128-ch Isolated Digital Input/Output Card



## Packing List

Before installation, please make sure that you have received the following:

- PCI-1758UDIO card
- Driver CD
- Quick Start User Manual

If anything is missing or damaged, contact your distributor or sales representative immediately.

**User Manual**

For more detailed information on this product, please refer to the PCI-1758U User Manual on the CD-ROM (PDF format).

CD:\Documents\Hardware Manuals\PCI\PCI-1758U

## Declaration of Conformity

### FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user is required to correct interference at his own expense.

### CE

This product 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.

## Overview

The PCI-1758UDIO card enables powerful data acquisition (DAS) for the PCI bus. It features a unique circuit design, and complete functions for data acquisition and control. The PCI-1758UDIO card provides specific functions for different user requirements.

## Notes

For more information on this and other Advantech products, please visit our websites at:

**http://www.advantech.com/eAutomation**

For technical support and service:

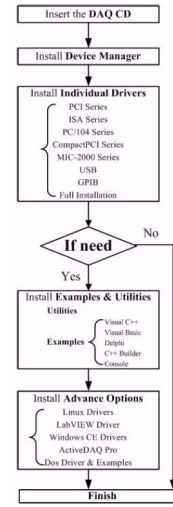
**http://www.advantech.com/support/**

This startup manual is for PCI-1758UDIO

Part No. 2003175841 2nd Edition

May 2011

## Software Installation



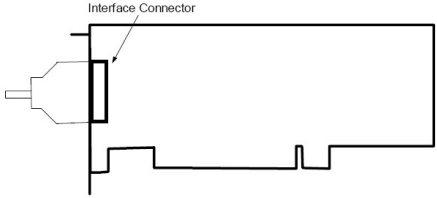

## Hardware Installation

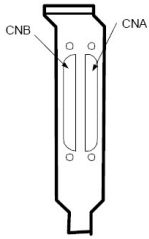
1. Turn off your computer and unplug the power cord and cables. TURN OFF your computer before installing or removing any components on the computer.
2. Remove the cover of your computer.
3. Remove the slot cover on the back panel of your computer.
4. Touch the metal part on the surface of your computer to neutralize the static electricity that might be on your body.
5. Insert the PCI-1758UDIO card into a PCI slot. Hold the card only by its edges and carefully align it with the slot. Insert the card firmly into place. Use of excessive force must be avoided; otherwise, the card might be damaged.
6. Fasten the bracket of the PCI card on the back panel rail of the computer with screws.
7. Connect appropriate accessories (68-pin cable, wiring terminals, etc. if necessary) to the PCI card.
8. Replace the cover of your computer chassis. Reconnect the cables you removed in step 2.
9. Plug in the power cord and turn on the computer.

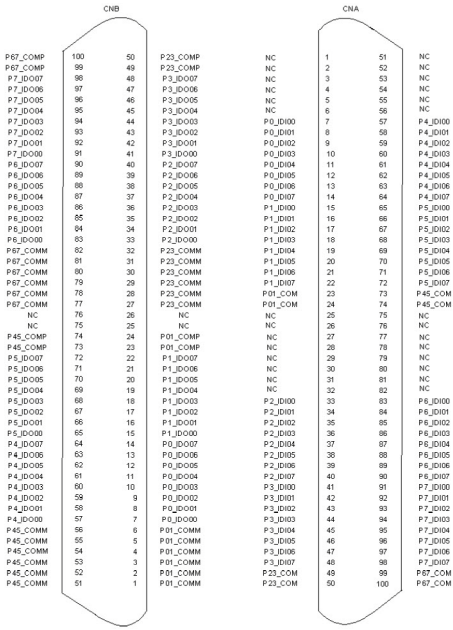
## Pin Assignments

The I/O connector on PCI-1758UDO is a MINI-SCSI HDRA-E100 Female connector.

Note: The PCL-101100S-1 (1m) shielded cable is especially designed for the PCI-1758U series to reduce noise in the analog signal lines.




| Signal Name | Reference | Direction | Description |
|---|---|---|---|
| P0_IDI00~ 07 | P01_COM | Input | Isolated Digital Input of port 0 |
| P1_IDI00~ 07 | P01_COM | Input | Isolated Digital Input of port 1 |
| P2_IDI00~ 07 | P23_COM | Input | Isolated Digital Input of port 2 |
| P3_IDI00~ 07 | P23_COM | Input | Isolated Digital Input of port 3 |
| P4_IDI00~ 07 | P45_COM | Input | Isolated Digital Input of port 4 |
| P5_IDI00~ 07 | P45_COM | Input | Isolated Digital Input of port 5 |
| P6_IDI00~ 07 | P67_COM | Input | Isolated Digital Input of port 6 |
| P7_IDI00~ 07 | P67_COM | Input | Isolated Digital Input of port 7 |
| P01_COM | - | | Common port of Digital Input port 0 and port 1 |
| P23_COM | - | | Common port of Digital Input port 2 and port 3 |
| P45_COM | - | | Common port of Digital Input port 4 and port 5 |
| P67_COM | - | | Common port of Digital Input port 6 and port 7 |
| P0_IDO00~ 07 | P01_COMM | Output | Isolated Digital Output of port 0 |
| P1_IDO00~ 07 | P01_COMM | Output | Isolated Digital Output of port 1 |
| P2_IDO00~ 07 | P23_COMM | Output | Isolated Digital Output of port 2 |
| P3_IDO00~ 07 | P23_COMM | Output | Isolated Digital Output of port 3 |
| P4_IDO00~ 07 | P45_COMM | Output | Isolated Digital Output of port 4 |
| P5_IDO00~ 07 | P45_COMM | Output | Isolated Digital Output of port 5 |
| P6_IDO00~ 07 | P67_COMM | Output | Isolated Digital Output of port 6 |
| P7_IDO00~ 07 | P67_COMM | Output | Isolated Digital Output of port 7 |
| P01_COMM | - | | Negative external power supply |
| P23_COMP | - | | Positive external power supply |
| P45_COMP | - | | Positive external power supply |
| P67_COMP | - | | Positive external power supply |

Note: Each COMM pin can tolerate no more than 300 mA. Make sure that every COMM pin is properly connected to the equipment's ground (GND).

## Signal Connections

PCI-1758UDIO has 64 isolated digital input channels designated:

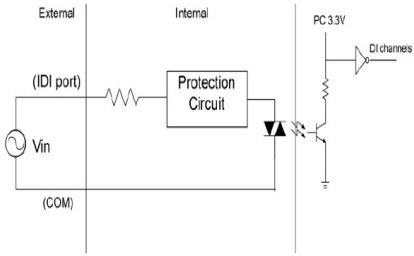
P0_IDI00~07, P1_IDI00~07, P2_IDI00~07, P3_IDI00~07, P4_IDI00~07, P5_IDI00~07, P6_IDI00~07, P7_IDI00~07.

### Interrupt Function of the DI Signals

All channels in PCI-1758UDI can be used to generate hardware interrupts. Setup the configuration of interrupts by programming the interrupt control register. For detailed information, please refer to Section 5.1, Interrupt Function, in the user manual.

### Isolated Input

Each of the isolated digital input channels accepts 5~25 VDC voltage inputs, and also accept bi-directional input. This means that you can apply positive or negative voltage to an isolated input pin. Each group of 16 channels share one common pin. Figure 3.8 shows how to connect an external input source to one of the card's isolated input channels



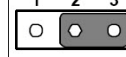
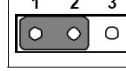

## Isolated Digital Output Connections

PCI-1758UDIO has 64 isolated digital output channels designated:

P0_IDO00~7, P1_IDO00~7, P2_IDO00~7, P3_IDO00~7, P4_IDO00~7, P5_IDO00~7, P6_IDO00~7, P7_IDO00~7.

### Power On Configuration

The default configuration will be set after power is turned on. The hardware reset sets all the isolated output channels to “off” status (The current of the load can not be sink mode). So you do not need to worry about damaging external devices during system startup or reset. When the system is hot reset, the status of the isolated digital output channels can be selected by jumper JP1. The following table shows the configuration of jumper JP1.

| JP1 on PCI-1758UDO | Power on configuration after hot reset |
|---|---|
|   | Keep the last digital output status after hot reset |
|   | Load default configuration while reset (default) |

### Isolated Output

Each of the isolated output channels is equipped with a Darlington transistor. All of the 16 output channels shares common collectors and integral suppression diodes for induction coil loads.

Note: If an external voltage (5 ~ 40 $V_{DC}$) is applied to an isolated output channel while it is being used as an output channel, the current will flow from the external voltage source to the card. Please be cautious about that the current flowing through each IDO pin can not exceed 90 mA.