

# 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/>

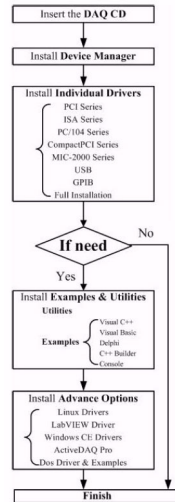
This startup manual is for PCI-1758UDIO

Part No. 2003175841

2nd Edition

May 2011

### Software Installation



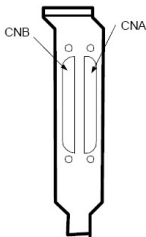
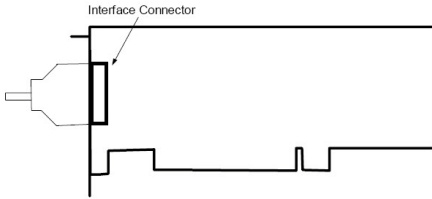
### Hardware Installation

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.



CNB			CNA				
P67_COMP	100	50	P23_COMP	NC	1	51	NC
P67_COMP	99	49	P23_COMP	NC	2	52	NC
P7_ID007	98	48	P3_ID007	NC	3	53	NC
P7_ID006	97	47	P3_ID006	NC	4	54	NC
P7_ID005	96	46	P3_ID005	NC	5	55	NC
P7_ID004	95	45	P3_ID004	NC	6	56	NC
P7_ID003	94	44	P3_ID003	P0_ID000	7	57	P4_ID000
P7_ID002	93	43	P3_ID002	P0_ID001	8	58	P4_ID001
P7_ID001	92	42	P3_ID001	P0_ID002	9	59	P4_ID002
P6_ID009	91	41	P3_ID000	P0_ID003	10	60	P4_ID003
P6_ID007	90	40	P2_ID007	P0_ID004	11	61	P4_ID004
P6_ID006	89	39	P2_ID006	P0_ID005	12	62	P4_ID005
P6_ID005	88	38	P2_ID005	P0_ID006	13	63	P4_ID006
P6_ID004	87	37	P2_ID004	P0_ID007	14	64	P4_ID007
P6_ID003	86	36	P2_ID003	P1_ID000	15	65	P5_ID000
P6_ID002	85	35	P2_ID002	P1_ID001	16	66	P5_ID001
P6_ID001	84	34	P2_ID001	P1_ID002	17	67	P5_ID002
P6_ID000	83	33	P2_ID000	P1_ID003	18	68	P5_ID003
P67_COMM	82	32	P23_COMM	P1_ID004	19	69	P5_ID004
P67_COMM	81	31	P23_COMM	P1_ID005	20	70	P5_ID005
P67_COMM	80	30	P23_COMM	P1_ID006	21	71	P5_ID006
P67_COMM	79	29	P23_COMM	P1_ID007	22	72	P5_ID007
P67_COMM	78	28	P23_COMM	P01_COMM	23	73	P45_COMM
P67_COMM	77	27	P23_COMM	P01_COMM	24	74	P45_COMM
NC	76	26	NC	NC	25	75	NC
NC	75	25	NC	NC	26	76	NC
P45_COMP	74	24	P01_COMP	NC	27	77	NC
P45_COMP	73	23	P01_COMP	NC	28	78	NC
P5_ID007	72	22	P1_ID007	NC	29	79	NC
P5_ID006	71	21	P1_ID006	NC	30	80	NC
P5_ID005	70	20	P1_ID005	NC	31	81	NC
P5_ID004	69	19	P1_ID004	NC	32	82	NC
P5_ID003	68	18	P1_ID003	P2_ID000	33	83	P6_ID000
P5_ID002	67	17	P1_ID002	P2_ID001	34	84	P6_ID001
P5_ID001	66	16	P1_ID001	P2_ID002	35	85	P6_ID002
P4_ID009	65	15	P1_ID000	P2_ID003	36	86	P6_ID003
P4_ID007	64	14	P0_ID007	P2_ID004	37	87	P6_ID004
P4_ID006	63	13	P0_ID006	P2_ID005	38	88	P6_ID005
P4_ID005	62	12	P0_ID005	P2_ID006	39	89	P6_ID006
P4_ID004	61	11	P0_ID004	P2_ID007	40	90	P6_ID007
P4_ID003	60	10	P0_ID003	P3_ID000	41	91	P7_ID000
P4_ID002	59	9	P0_ID002	P3_ID001	42	92	P7_ID001
P4_ID001	58	8	P0_ID001	P3_ID002	43	93	P7_ID002
P4_ID000	57	7	P0_ID000	P3_ID003	44	94	P7_ID003
P45_COMM	56	6	P01_COMM	P3_ID004	45	95	P7_ID004
P45_COMM	55	5	P01_COMM	P3_ID005	46	96	P7_ID005
P45_COMM	54	4	P01_COMM	P3_ID006	47	97	P7_ID006
P45_COMM	53	3	P01_COMM	P3_ID007	48	98	P7_ID007
P45_COMM	52	2	P01_COMM	P23_COMM	49	99	P87_COMM
P45_COMM	51	1	P01_COMM	P23_COMM	50	100	P87_COMM

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_COMM	-	-	Positive external power supply
P45_COMM	-	-	Positive external power supply
P67_COMM	-	-	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.

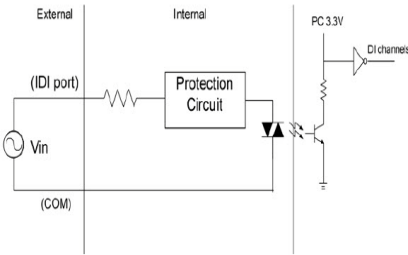
# Signal Connections

## 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-1758UDIO	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<sub>DC</sub>) 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.

