PCI-1714U/1714UL

Simultaneous 4-ch Analog Input Card

Packing List

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

- PCI-1714U, PCI-1714UL DA&C 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-1714U User Manual on the CD-ROM (PDF format).

CD:\Documents\Hardware Manuals\PCI\PCI-1714U

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-1714U and PCI-1714UL are simultaneous 4-channel analog input cards with high sampling rates. They are advanced-performance data acquisition cards based on 32-bit PCI bus architecture. The maximum sampling rate of PCI-1714U is up to 30 MS/s, and 10 MS/s for PCI-1714UL.

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-1714U/1714UL.

Part No. 2003171410 1st Edition
July 2005

Specifications

Analog Input

Channels	4 single-ended analog input channels				
Resolution	12-bit				
FIFO Size	PCI-1714U: 32K PCI-1714UL: 8K				
Max. Sampling Rate	30MHz For PCI-1714U 10MHz For PCI-1714UL				
Input range and Gain List	Gain	1	2	5	10
	Range	±5V	±2.5V	±1V	±0.5V
Drift	Gain	1	2	5	10
	Zero (µV / °C)	±200	±100	±40	±20
	Gain (ppm / °C)	±30	±30	±30	±30
Small Signal Bandwidth for PGA	Gain	1	2	5	10
	Bandwidth (-3dB)	7MHz	7MHz	7MHz	7MHz
Max. Input voltage	±15V				
Input Surge Protection	30 Vp-p				
Input Impedance	50/1M/Hi Z jumper selectable /100pF				
Trigger Mode	Software, pacer, post-trigger, pre-trigger, delay-trigger, about-trigger				
Accuracy	DC	DNLE	±1LSB (No Missing Codes:12 Bits Guaranteed)		
		INLE	±2LSB		
		Offset error	Adjustable to ±1LSB		
		Gain error	Adjustable to ±1LSB		
	AC	SINAD S/(N+D)	66 dB (Hi Z)		
		ENOB	10.67 bits (Hi Z)		
		THD	-73 dB (Hi Z)		
External Clock 1	Logic level		TTL (Low: 0.8 V max. High: 2.0V min.)		
	Input impedance		50 ohms		
	Input coupled		DC		
	Frequency		Up to 10MHz		
External Clock 0	Logic level		5.0V peak to peak sin wave		
	Input impedance		Hi Z		
	Input coupled		AC		
	Frequency		Up to 10MHz		
External Trigger 0	Logic level		TTL (Low: 0.8 V max. High: 2.0V min.)		
	Input impedance		Hi Z		
	Input coupled		DC		
External Analog Trigger Input	Range		By analog input range		
	Resolution		8-bit		
	Frequency		Up to 1MHz		

PCI-1714U: 30 MHz is only for FIFO depth of 32K.

PCI-1714UL: 10 MHz is only for FIFO depth of 8K.

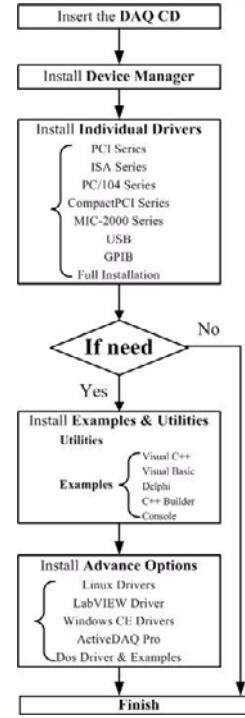
Specifications

General

I/O Connector Type	4 BNC connector for AI 1 PS2 connector for ext. clock and trigger	
Dimensions	137 x 107 mm (5.4" x 4.2")	
Power Consumption	**Typical**	+5 V @ 850 mA ; +12 V @ 600 mA
	Max.	+5 V @ 1 A ; +12 V @ 700mA
Temperature	**Operating**	0~70°C (32~158°F)
	Storage	-20 ~ 85°C (-4 ~ 185°F)
Relative Humidity	5~95%RH, non-condensing (refer to IEC 68-2-3)	
Certification	CE certified	

Installation

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-1714U 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-1714U card on the back panel rail of the computer with screws.
7. Connect appropriate accessories (such as source/sync signal cables, wiring terminals, etc. if necessary) to the card.
8. Replace the cover of your computer chassis. Re-connect the cables you removed in step 1.
9. Plug in the power cord and turn on the computer.

Switch & Jumper settings

PCI-1714U/1714UL cards have one function switch and five jumper settings.

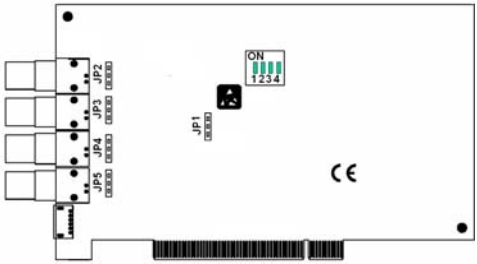


Figure 1: Card Connector, Jumper and Switch Locations

BoardID Switch Setting (SW1)

BoardID settings are used to set a board's unique identifier when multiple identical cards are installed in the same system.

PCI-1714U/1714UL cards have a built-in DIP switch (SW1), which is used to define each card's unique identifier. You can determine the unique identifier in the register as shown in following table. If there are multiple iden-tical cards in the same chassis, the BoardID switch helps differentiate the boards by identifying each card's device number with the switch setting. The BoardID switch's unique identifier has been set to 0 at the factory.If you need to adjust it to other numbers, set SW1 by referring to DIP switch settings below

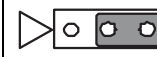
.

ID3 ID1	ID2	ID1	ID0	Board ID
1	1	1	1	0
1	1	1	0	1
1	1	0	1	2
1	1	0	0	3
1	0	1	1	4
1	0	1	0	5
1	0	0	1	6
1	0	0	0	7
0	1	1	1	8
0	1	1	0	9
0	1	0	1	10
0	1	0	0	11
0	0	1	1	12
0	0	1	0	13
0	0	0	1	14
0	0	0	0	15

Note: On: 1, off: 0

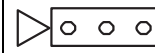
Power on Configuration after Hot Reset (JP1)

Use JP1 to set the hot reset type of PCI-1714/1714U.

JP1	Power on configuration after hot reset
	Keep the hardware register setting after hot reset.
	Load the hardware register default setting after hot reset. (Default setting)

Input Terminator Select (JP2 to JP5)

Use JP2 to JP5 to set input terminator values for each AI channel (CH0 to CH3).

JP2, JP3, JP4, JP5	Input terminator select
	50 ohm
	1M ohm (Default setting)
	High impedance

Pin Assignments

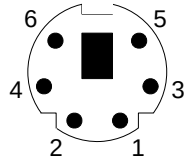


Figure 2: PS-2 Pin Assignments

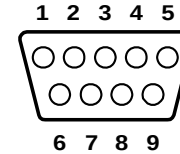


Figure 3: DB9 Pin Assignments

Pin	Description
1	EXT TRIG 0
2	NC
3	EXT CLK 0+
4	GND
5	EXT CLK 0-
6	EXT CLK 1

Pin	Description
1	EXT TRIG 0
2	NC
3	EXT CLK 0+
4	GND
5	EXT CLK 0-
6	EXT CLK 1
7	GND
8	GND
9	GND