



PCI-1602U

Universal PCI, 100 kS/s, 32-ch, 16-bit Analog Input
Multifunction Board (8 K word FIFO)

PCI-1602FU

Universal PCI, 200 kS/s, 32-ch, 16-bit Analog Input
Multifunction Board (8 K word FIFO)

Introduction

The PCI-1602U/FU is a high-performance multifunction card providing high-speed Analog and Digital I/O functions. The PCI-1602U/FU is based on the Universal PCI interface, supporting both the 3.3 V and the 5 V PCI bus, and features a continuous 100 kS/s (200 kS/s for the F version) 16-bit resolution AD converter, an 8 K-sample hardware FIFO, a MagicScan controller (for multi-channel scanning), a 2-channel 16-bit DA converter, and 16-channel Digital Input and 16-channel Digital Output.

The PCI-1602U/FU provides either 32-channel single-ended or 16-channel differential Analog Inputs that are jumper selectable, and a programmable high-speed PGA that is equipped for gain controls (1, 2, 4 and 8). The PCI-1602U/FU is fully compatible with the PCI-1602/F, and is designed as a direct replacement without requiring any modification to the software or the driver.

The PCI-1602U/FU also includes an onboard Card ID switch that enables the board to be recognized via software if two or more PCI-1602U/FU cards are installed in the same computer. The pull-high/low resistors allow the DI status to be predefined instead of remaining floating if the DI channels are disconnected or interrupted.

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
AI_0	01	20 AI_16	DO 0	01	DO 1
AI_1	02	21 AI_17	DO 2	03	DO 3
AI_2	03	22 AI_18	DO 4	05	DO 5
AI_3	04	23 AI_19	DO 6	07	DO 7
AI_4	05	24 AI_20	DO 8	09	DO 9
AI_5	06	25 AI_21	DO 10	10	DO 10
AI_6	07	26 AI_22	DO 12	12	DO 14
AI_7	08	27 AI_23	DO 14	14	DO 16
AI_8	09	28 AI_24	GND	16	DO 18
AI_9	10	29 AI_25	+5 V	18	DO 20
AI_10	11	30 AI_26			+12 V
AI_11	12	31 AI_27			
AI_12	13	32 AI_28			
AI_13	14	33 AI_29			
AI_14	15	34 AI_30			
AI_15	16	35 AI_31			
A.GND	17	36 Da2 out			
Da1 out	18	37 D.GND			
Ext_Trg	19				

Features

- Universal PCI (3.3 V/5 V) Interface
- Supports Card ID (SMD Switch)
- 2-channel, 12-bit Analog Output
- 16-channel 5 V/TTL Digital Output
- 16-channel 5 V/TTL Digital Input
 - Pull-high and Pull-low Resistors for DI Channels
- 32 Single-ended/16 Differential Analog Input Channels
 - 12-bit, 100 kS/s or 200 kS/s AD Converter
 - Built-in MagicScan Controller
 - Internal Trigger: Software-trigger, Pacer-trigger
 - External Trigger: Post-trigger, Pre-trigger, Middle-trigger
- High-speed data transfer rate up to 2.1 M words/sec.



Software

Drivers

- 32/64-bit Windows 10/11
- Linux
- DASYLab

Sample Programs

- DOS Lib and TC/BC/MSC Demo
- VB/VC/Delphi/VB.NET/C#.NET/VC.NET/LabVIEW/Python/MATLAB

Hardware Specifications

Model	PCI-1602U	PCI-1602FU
Analog Input		
Channels	32 Single-ended/16 Differential	
AD Conversion	16-bit, 2 μs Conversion Time	
Accuracy	0.01% of FSR ±1 LSB @ 25 °C, ±10 V	
FIFO Size	8192 Samples	
Sampling Rate	100 kS/s	200 kS/s
Analog Output		
Channels	2	
Resolution	12-bit	
Accuracy	0.06% of FSR ±1 LSB @ 25°C, ±10 V	
Output Driving	±5 mA	
Output Range	Bipolar: ±5 V, ±10 V	
Digital I/O		
Channels	DI	16, 5 V/TTL
	DO	16, 5 V/TTL
Input Voltage	Logic 0: 0.8 V Max.; Logic 1: 2.0 V Min.	
Output Voltage	Logic 0: 0.4 V Max.; Logic 1: 2.4 V Min.	
Output Capability	Sink: 2.4 mA @ 0.8 V; Source: 0.8 mA @ 2.0 V	
Timer/Counter		
Channels	3	
Resolution	16-bit	
Input Frequency	10 MHz Max.	
Reference Clock	Internal: 8 MHz	
General		
Bus Type	3.3 V/5 V Universal PCI, 32-bit, 33 MHz	
Card ID	Yes (4-bit)	
Connectors	Female DB37 x 1, 20-pin Box Header x 2	
Power Consumption	300 mA @ +5 V	
Operating Temperature	0°C to +60°C	
Humidity	5 to 85% RH, Non-condensing	

Ordering Information

PCI-1602U CR	Universal PCI, 100 kS/s, 32-ch, 16-bit Analog Input Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-4002 D-Sub connector
PCI-1602FU CR	Universal PCI, 200 kS/s, 32-ch, 16-bit Analog Input Multifunction Board (8 K word FIFO) (RoHS) Includes one CA-4002 D-Sub connector

Accessories

	ADP-20/PCI CR	Extender, Extended dual 20-pin flat-cable connector to PC slot window (RoHS)
	CA-2002 CR	20-pin flat cable, 20 cm x 2 (RoHS)
	CA-2010 CR	20-pin flat cable, 1 M (RoHS)
	CA-2020 CR	20-pin flat cable, 2 M (RoHS)
	CA-3710 CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (45°)) (RoHS)
	CA-3710D CR	DB-37 Male-Male D-sub cable 1 M (Cable for Daughter Board (180°)) (RoHS)
	CA-3715DM-H CR	DB-37 Male-Male Cable, 1.5 M, 180° (RoHS)
	CA-3730DM-H CR	DB-37 Male-Male Cable, 3.0 M, 180° (RoHS)
	CA-4002 CR	37-pin Male D-sub connector with plastic cover (RoHS)
	DB-1825 CR	Analog Input Screw terminal Board (RoHS)
	DB-16P CR	Isolated Digital Input Daughter Board (RoHS)
	DB-16R CR	Relay Output Daughter Board (RoHS)
	DN-20/DN-20-381 CR	20-pin DIN-RAIL mounting I/O connector board (RoHS)
	DN-37 CR	DIN Rail Mounting 37-pin Connector (RoHS)
	2AB125R CR	Resistor DIP 125R 0.1% 1/4W MF 50PPM (1PCS) (RoHS)

