



PIO-DA4U/DA8U/DA16U
 Universal PCI, 4-ch, 14-bit Analog Output Board
 Universal PCI, 8-ch, 14-bit Analog Output Board
 Universal PCI, 16-ch, 14-bit Analog Output Board

Introduction

The PIO-DA4U/DA8U/DA16U series cards are compatible with the PCI versions of the PIO-DA4/DA8/DA16 cards and, in most cases, the PIO-DA4U/DA8U/DA16U series can be used as a direct replacement for the PIO-DA4/DA8/DA16 series without requiring any modification to the software or the driver.

The voltage output range for the PIO-DA4U/DA8U/DA16U series is from -10 V to +10 V, and the current output range is from 0 to 20 mA.

In addition, the PIO-DA4U/DA8U/DA16U series also features the following innovative advantages:

1. Accurate and easy-to-use calibration:

ICP DAS provides a software calibration function rather than manual calibration so that jumpers and trim-pots are no longer required for calibration, and the calibration data can be saved in the EEPROM for long-term use.

2. Individual channel configuration:

Each channel can be individually configured as either voltage or current output.

3. Card ID:

ICP DAS has also included an onboard Card ID switch on the PIO-DA4U/DA8U/DA16U series that enables the board to be recognized via software if two or more boards are installed in the same computer.

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

Ordering Information

PIO-DA4U CR	Universal PCI, 4-ch, 14-bit, Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector
PIO-DA4U/S CR	Universal PCI, 4-ch Analog Output Board (RoHS) Includes one CA-3710 D-Sub cable
PIO-DA8U CR	Universal PCI, 8-ch, 14-bit Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector
PIO-DA8U/S	Universal PCI, 8-ch Analog Output Board (RoHS) Includes one CA-3710 D-Sub cable
PIO-DA16U CR	Universal PCI, 16-ch, 14-bit Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector
PIO-DA16U/S CR	Universal PCI, 16-ch Analog Output Board (RoHS) Includes one CA-3710 D-Sub cable

Features

- Universal PCI (3.3 V/5 V) Interface
- 14-bit, 4/8/16-channel Analog Output
 - Software Calibration
 - Two Timer-triggered Interrupt Sources
 - Double-buffered DA Latch
- 16-channel 5 V/TTL Digital Output
- 16-channel 5 V/TTL Digital Input
 - Pull-high and Pull-low Function for DI Channels
- Supports Card ID (SMD Switch)



Hardware Specifications

Model	PIO-DA4U	PIO-DA8U	PIO-DA16U
Hardware			
Card ID	Yes(4-bit) for Version 1.1 or above		
Connector	Female DB37 x 1 20-pin Box header x 2		
Analog Output			
Channels	4	8	16
Range	Voltage: ±10 V Current: 0 ~ 20 mA		
Resolution	14-bit		
Accuracy	0.04% of FSR ±2 LSB @ 25 °C, ± 10 V		
Voltage Output Capability	±5 mA		
Response Time	333 kHz (Typical)		
Slew Rate	0.71 V/μs		
Operation Mode	Static Update		
Digital Input			
Channels	16		
Type	5 V/TTL		
TTL Input, ON Voltage Level	2.0 V Min.		
TTL Input, OFF Voltage Level	0.8 V Max.		
Response Speed	1.0 MHz (Typical)		
Trigger Mode	Static Update		
Digital Output			
Channels	16		
Type	5 V/TTL		
Operation Mode	Static Update		
Voltage	Logic 0: 0.4 V Max. Logic 1: 2.4 V Min.		
Max. Load Current	Sink: 2.4 mA @ 0.8 V Source: 0.8 mA @ 2.0 V		
Response Speed	1.0 MHz (Typical)		
Timer/Counter/Frequency			
Channels	3		
Type	5 V/TTL		
Resolution	16-bit		
Reference Clock	Internal: 4 MHz		
PC Bus			
Type	3.3 V/5 V Universal PCI, 32-bit, 33 MHz		
Data Bus	8-bit		
Power			
Consumption	600 mA@ +5 V	800 mA@ +5 V	1400 mA @ +5 V
Mechanical			
Dimensions (mm)	105.1 x 188 x 22 (W x L x D)		
Environmental			
Operating Temperature	0 ~ +60°C		
Storage Temperature	-20 ~ +70°C		
Humidity	5 ~ 85% RH, Non-condensing		

Pin Assignments

Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
VO_0	01	20	IO_0	DO 0	01
VO_1	02	21	IO_1	DO 2	03
VO_2	03	22	IO_2	DO 4	05
VO_3	04	23	IO_3	DO 6	07
A.GND	05	24	N/A	DO 8	09
VO_4	06	25	IO_4	DO 10	11
VO_5	07	26	IO_5	DO 12	13
VO_6	08	27	IO_6	DO 14	15
VO_7	09	28	IO_7	GND	17
A.GND	10	29	N/A	+5 V	19
VO_8	11	30	IO_8	CON1	
VO_9	12	31	IO_9		
VO_10	13	32	IO_10		
VO_11	14	33	IO_11		
A.GND	15	34	IO_12		
VO_12	16	35	IO_13		
VO_13	17	36	IO_14		
VO_14	18	37	IO_15		
VO_15	19				
CON3					

Pin Assignment	Terminal No.	Pin Assignment
DI 0	01	DI 1
DI 2	03	DI 3
DI 4	05	DI 5
DI 6	07	DI 7
DI 8	09	DI 9
DI 10	10	DI 11
DI 12	12	DI 13
DI 14	14	DI 15
GND	16	GND
+5 V	18	+12 V
CON2		

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-3750DM CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-3750DM-H CR	DB-37 Male-Male Cable, 5.0 M, 180° (RoHS)
	CA-4002 CR	37-pin Male D-sub connector with plastic cover (RoHS)
	DB-16P CR	16-channel Isolated Digital Input Daughter Board (RoHS)
	DB-16R CR	16-channel Relay Output Daughter Board (RoHS)
	DB-24PR CR	24-channel power relay board (RoHS)
	DB-24POR CR	24-channel Photo Mos relay output board (RoHS)
	DB-24C CR	24-channel open-collector output board (RoHS)
	DN-20 CR	20-pin DIN-RAIL mounting I/O connector board (RoHS)
	DN-20-381 CR	
	DN-37 CR	DIN Rail Mounting 37-pin Connector (RoHS)

