



## PEX-DA4/PEX-DA8/PEX-DA16

PCI Express, 4-ch, 14-bit Analog Output Board  
 PCI Express, 8-ch, 14-bit Analog Output Board  
 PCI Express, 16-ch 14-bit Analog Output Board

### Introduction

The PEX-DA4/DA8/DA16 series Analog Output boards utilize the PCI Express interface, and are equipped with 4, 8, or 16 Analog Output channels at 14-bit resolution with each DA channel featuring a double-buffered latch.

The voltage output for the PEX-DA series can range from -10 V to +10 V, and the current output range can be from 0 to 20 mA. In addition, the PEX-DA series also provides the following advantages:

1. Accurate and easy-to-use calibration: ICP DAS provides a software calibration function, meaning that jumpers and trimpots are no longer required. The calibration data is saved in EEPROM for long-term use.
2. Individual channel configuration: Each channel can be individually configured as either voltage or current output.
3. Card ID: The PEX-DA series includes a Card ID switch that enables the board to be easily recognized via software if two or more cards are installed in the same computer.

The PEX-DA series is designed as an easy replacement for the PIO-DA series without requiring any modification to either the software or the driver.

### Software

#### Drivers

- 32/64-bit Windows 10/11  Linux

#### Sample Programs

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

### Ordering Information

<b>PEX-DA4 CR</b>	PCI Express, 4-ch, 14-bit Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector
<b>PEX-DA8 CR</b>	PCI Express, 8-ch, 14-bit Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector
<b>PEX-DA16 CR</b>	PCI Express, 16-ch 14-bit Analog Output Board (RoHS) Includes one CA-4002 D-Sub connector

### Features

- PCI Express x1 Interface
- 16-channel 5 V/TTL Digital Input
- 16-channel 5 V/TTL Digital Output
- Pull-high/Pull-low Jumpers for DI Channels
- Supports Card ID (SMD Switch)
- 4, 8 or 16-channel 14-bit Analog Output
- Voltage Output:  $\pm 10$  V
- Current Output: 0 ~ +20 mA (sink)
- Double-buffered DA Latch



### Hardware Specifications

Model	PEX-DA4	PEX-DA8	PEX-DA16
<b>Hardware</b>			
Card ID	Yes (4-bit)		
Connector	Female DB37 x 1 20-pin Box header x 2		
<b>Analog Output</b>			
Channels	4	8	16
Range	Voltage: $\pm 10$ V Current: 0 ~ 20 mA		
Resolution	14-bit		
Accuracy	0.04% of FSR $\pm 2$ LSB @ 25 °C, $\pm 10$ V		
Voltage Output Capability	$\pm 5$ mA		
Response Time	166 kHz (Typical)		
Slew Rate	0.71 V/ $\mu$ s		
Operation Mode	Static Update		
<b>Digital I/O</b>			
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	500 kHz (Typical)		
Trigger Mode	Static Update		
<b>Digital Output</b>			
Channels	16		
Type	5 V/TTL		
Operation Mode	Static Update		
Voltage	Logic 0: 0.1 V Max. Logic 1: 4.4 V Min.		
Max. Load Current	Sink: 6 mA @ 0.33 V Source: 6 mA @ 4.77 V		
Response Speed	500 kHz (Typical)		
<b>Timer/Counter/Frequency</b>			
Channels	3		
Type	5 V/TTL		
Resolution	16-bit		
Reference Clock	Internal: 4 MHz		
<b>PC Bus</b>			
Type	PCI Express x 1		
Data Bus	8-bit		
<b>Power</b>			
Consumption	750 mA@ +3.3 V 350 mA@ +12 V	750 mA@ +3.3 V 400 mA@ +12 V	750 mA@ +3.3 V 550 mA @ +12 V
<b>Mechanical</b>			
Dimensions (mm)	116.4 x 172.6 x 22 (W x L x D)		
<b>Power</b>			
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	DI 0	01
VO_10	13	32	IO_10	DI 2	03
VO_11	14	33	IO_11	DI 4	05
A.GND	15	34	IO_12	DI 6	07
VO_12	16	35	IO_13	DI 8	09
VO_13	17	36	IO_14	DI 10	10
VO_14	18	37	IO_15	DI 12	12
VO_15	19			DI 14	14
CON3				GND	16
				+5 V	18
				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) (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)

