



## PISO-DA4U/DA8U/DA16U

Universal PCI, 4-ch, 14-bit Isolated AO Board

Universal PCI, 8-ch, 14-bit Isolated AO Board

Universal PCI, 14-bit, 16-ch Isolated AO Board

### Introduction

The PISO-DA4U/DA8U/DA16U card is designed as an easy replacement for the PIO-DA4/DA8/DA16 without requiring any modification to the software or the driver.

The PISO-DA4U/DA8U/DA16U series provides an additional high-voltage isolation design that protects the Host PC from damage due to unexpected power surges, while the built-in high-quality isolation components provide the boards with 2500 VDC bus-type isolation. The voltage output range for the PISO-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 PISO-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 PISO-DAxU 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

<b>PISO-DA4U CR</b>	Universal PCI, 4-ch, 14-bit Isolated AO Board (RoHS) Includes one CA-4002 D-Sub connector
<b>PISO-DA4U/S CR</b>	Universal PCI, 4-ch Isolated AO Board (RoHS) Includes one CA-3710 D-Sub cable
<b>PISO-DA8U CR</b>	Universal PCI, 8-ch, 14-bit Isolated AO Board (RoHS) Includes one CA-4002 D-Sub connector
<b>PISO-DA8U/S CR</b>	Universal PCI, 8-ch Isolated AO Board (RoHS) Includes one CA-3710 D-Sub cable
<b>PISO-DA16U CR</b>	Universal PCI, 14-bit, 16-ch Isolated AO Board (RoHS) Includes one CA-4002 D-Sub connector
<b>PISO-DA16U/S CR</b>	Universal PCI, 16-ch Isolated AO 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
  - 2500 Vdc Bus and Power Isolation Protection
  - Built-in DC/DC Converter with 3000 Vdc Protection
  - Software Calibration
  - Two Timer-triggered Interrupt Sources
  - Double-buffered DA Latch
- Supports Card ID (SMD Switch)
- 16-channel 5 V/TTL Digital Output
- 16-channel 5 V/TTL Digital Input
  - Pull-high and Pull-low Function for DI Channels



### Hardware Specifications

Model	PISO-DA4U	PISO-DA8U	PISO-DA16U
<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		
Response Time	333 kHz (Typical)		
Voltage Output Capability	$\pm 5$ mA		
Slew Rate	0.71 V/ $\mu$ s		
Isolation	2500 V (Bus Type)		
Operation Mode	Static Update		
<b>Digital Input</b>			
Channels	16		
Type	5 V/TTL		
ON Voltage Level	2.0 V Min.		
OFF Voltage Level	0.8 V Max.		
Response Speed	1.0 MHz (Typical)		
Trigger Mode	Static Update		
<b>Digital Output</b>			
Channels	16		
Type	5 V/TTL		
Operation Mode	Static Update		
Load Voltage	Logic 0: 0.4 V Max. , Logic 1: 2.4 V Min.		
Load Current	Sink: 2.4 mA @ 0.8 V , Source: 0.8 mA @ 2.0 V		
Response Speed	1.0 MHz (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	3.3 V/5 V Universal PCI, 32-bit, 33 MHz		
Data Bus	8-bit		
<b>Power</b>			
Consumption	2200 mA @ +5 V	2400 mA @ +5 V	3000 mA @ +5 V
<b>Mechanical</b>			
Dimensions (mm)	105.1 x 188 x 22 (W x L x D)		105.06 x 188 x 22 (W x L x D)
<b>Environment</b>			
Operating Temperature	0 ~ +60°C		
Storage Temperature	-20 ~ +70°C		
Humidity	5 ~ 85% RH, Non-condensing		

## Applications

- High speed data acquisition system.
- Process monitor and control.
- Vibration analysis.
- Digital pattern generator from digital I/O port.

## Pin Assignments

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

  

Pin Assignment	Terminal No.	Pin Assignment	
DI 0	01	DI 1	02
DI 2	03	DI 3	04
DI 4	05	DI 5	06
DI 6	07	DI 7	08
DI 8	09	DI 9	10
DI 10	10	DI 11	12
DI 12	12	DI 13	14
DI 14	14	DI 15	16
GND	16	GND	18
+5 V	18	+12 V	20

## 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	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)

### PEX-DA4/PEX-DA8/PEX-DA16 PIO-DA4U/PIO-DA8U/PIO-DA16U PISO-DA4U/PIO-DA8U/PIO-DA16U

