



## PISO-730U/PISO-730U-5V

Universal PCI, 32-ch Isolated Digital I/O and  
32-ch Digital I/O Board (Current Sinking, NPN)

### Introduction

The PISO-730U/730U-5V cards provide 32 isolated Digital I/O channels (16 x DI and 16 x DO) and 32 TTL-level Digital I/O channels (16 x DI and 16 x DO). Both the isolated Digital Input and the Digital Output channels use a short optical transmission path to transfer an electronic signal between the elements of a circuit and keep them electrically isolated. With 3750 Vrms isolation protection, the DI/O channels allow the input signals to be completely floated so as to prevent ground loops and isolate the host computer from potentially damaging voltage spikes.

Each Digital Output includes a Darlington (NPN) transistor and an integrated suppression diode for the inductive load. The open-collector Digital Output channels are typically used for alarm and warning notifications, signal output control, control for external circuits that require a higher voltage level, or signal transmission applications, etc.

The PISO-730U/730U-5V cards also include an onboard Card ID switch 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 XP/2003/2008/7/8/10  
☒ Linux ☒ DASYLab

#### Sample Programs

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

### Ordering Information

|                        |                                                                                                                                          |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PISO-730U CR</b>    | Universal PCI, 32-ch Isolated Digital I/O and 32-ch Digital I/O Board (Current Sinking, NPN) (RoHS) Includes one CA-4002 D-Sub connector |
| <b>PISO-730U-5V CR</b> | Universal PCI, 32-ch Isolated Digital I/O and 32-ch Digital I/O Board (Current Sinking, NPN) (RoHS) Includes one CA-4002 D-Sub connector |

### Features

- Universal PCI (3.3 V/5 V) Interface
- 16-channel Optically-isolated Digital Input
- 16-channel Optically-isolated Digital Output (Sink, NPN)
- 16-channel 5 V/TTL Digital Output
- 16-channel 5 V/TTL Digital Input
- Built-in DC/DC Converter with 3000 VDC Isolation
- 3750 Vrms Photo-isolation Protection
- Supports Card ID (SMD Switch)
- Supports DO Status Readback (Register Level)
- 2 Interrupt Sources



### Hardware Specifications

| Model                          | PISO-730U                                                                                                                            | PISO-730U-5V                     |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Hardware                       |                                                                                                                                      |                                  |
| Card ID                        | Yes (4-bit)                                                                                                                          |                                  |
| Connector                      | Female DB37 x 1<br>20-pin box header x 2                                                                                             |                                  |
| Digital Input                  |                                                                                                                                      |                                  |
| Channels                       | 16 (Isolated) + 16 (Non-isolated )                                                                                                   |                                  |
| Type                           | Isolated: Photocoupler (Sink and Source)<br>Non-isolated: 5V/TTL                                                                     |                                  |
| TTL Input, ON Voltage Level    | 2.0 V Min.                                                                                                                           |                                  |
| TTL Input, OFF Voltage Level   | 0.8 V Max.                                                                                                                           |                                  |
| Response Speed                 | 4 kHz (Typical) (Isolated)<br>1.0 MHz (Typical) (Non-isolate)                                                                        |                                  |
| Trigger Mode                   | Static Update                                                                                                                        |                                  |
| Wet Contact, ON Voltage Level  | 9 ~ 24 V (Min. 7 V; Max. 30 V)                                                                                                       | 5 ~ 12 V (Min. 3.5 V; Max. 16 V) |
| Wet Contact, OFF Voltage Level | 0 ~ 1 V                                                                                                                              |                                  |
| Isolation                      | 3750 Vrms (Isolated)                                                                                                                 |                                  |
| Digital Output                 |                                                                                                                                      |                                  |
| Channels                       | 16 (Isolated) + 16 (Non-isolated )                                                                                                   |                                  |
| Type                           | Isolated: Sink (NPN), Open Collector<br>Non-isolated: 5V/TTL                                                                         |                                  |
| Operation Mode                 | Static Update                                                                                                                        |                                  |
| Voltage                        | Non-isolated:<br>Logic 0: 0.4 V max.<br>Logic 1: 2.4 V min.                                                                          |                                  |
| Max. Load Current              | 100 mA/+30 V for each channel @ 100% duty (Isolated)<br>Sink: 2.4 mA @ 0.8 V (Non-isolated)<br>Source: 0.8 mA @ 2.0 V (Non-isolated) |                                  |
| Response Speed                 | 4 kHz (Typical) (Isolated)<br>1.2 MHz (Typical) (Non-isolate)                                                                        |                                  |
| Isolation                      | 3750 Vrms (Isolated)                                                                                                                 |                                  |
| PC Bus                         |                                                                                                                                      |                                  |
| Type                           | 3.3 V/5 V Universal PCI, 32-bit, 33 MHz                                                                                              |                                  |
| Data Bus                       | 8-bit                                                                                                                                |                                  |
| Power                          |                                                                                                                                      |                                  |
| Consumption                    | 640 mA @ +5 V                                                                                                                        |                                  |
| Mechanical                     |                                                                                                                                      |                                  |
| Dimensions (mm)                | 105 x 180 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 | Terminal No. | Pin Assignment |
|----------------|--------------|----------------|--------------|----------------|
| IDI_0          | 01           | 20             | IDI_1        | DI 0           |
| IDI_2          | 02           | 21             | IDI_3        | DI 2           |
| IDI_4          | 03           | 22             | IDI_5        | DI 4           |
| IDI_6          | 04           | 23             | IDI_7        | DI 6           |
| IDI_8          | 05           | 24             | IDI_9        | DI 8           |
| IDI_10         | 06           | 25             | IDI_11       | DI 10          |
| IDI_12         | 07           | 26             | IDI_13       | DI 12          |
| IDI_14         | 08           | 27             | IDI_15       | DI 14          |
| EI.COM1        | 09           | 28             | EI.COM2      | DI 15          |
| EPWR1          | 10           | 29             | IGND         | GND            |
| IDO_0          | 11           | 30             | IDO1         | +5 V           |
| IDO_2          | 12           | 31             | IDO3         | CON2           |
| IDO_4          | 13           | 32             | IDO5         |                |
| IDO_6          | 14           | 33             | IDO7         |                |
| IDO_8          | 15           | 34             | IDO9         |                |
| IDO_10         | 16           | 35             | IDO11        |                |
| IDO_12         | 17           | 36             | IDO13        |                |
| IDO_14         | 18           | 37             | IDO15        |                |
| EPWR2          | 19           |                |              |                |
| CON1           |              |                |              |                |

## Accessories

|  |                |                                                                          |
|--|----------------|--------------------------------------------------------------------------|
|  | 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-37 CR       | Directly connect signal to D-sub 37-pin connector (RoHS)                 |
|  | DN-37 CR       | DIN Rail Mounting 37-pin Connector (RoHS)                                |
|  | DN-20 CR       | Two 20-pin header DIN-rail terminal board (RoHS)                         |
|  | DN-20/N CR     | DN-20 without DIN-Rail mount (RoHS)                                      |
|  | DB-16P CR      | Isolated Digital Input Daughter Board (RoHS)                             |
|  | DB-16R CR      | Relay Output Daughter Board (RoHS)                                       |
|  | ADP-20/PCI CR  | 20-pin extender (RoHS)                                                   |

