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Find the *Keithley PDISO-8* at our website: *Click HERE*

For controlling and sensing applications

DATA ACQUISITION PRODUCTS

# PDISO-8

# 8-Channel Isolated Digital I/O Board




- **8 optically isolated inputs**
- **8 electromechanical relay outputs**
- **3A contact rating**
- **32-bit DriverLINX® drivers plus a suite of bundled software including ExceLINX™, VisualSCOPE™, and LabVIEW™ drivers**

## Ordering Information

**PDISO-8** **Isolated 8 Digital Input/8 Relay Output Board**

## APPLICATIONS

- **Energy management**
- **Product test**
- **Security controller**
- **Annunciator**
- **Laboratory automation**
- **Factory automation**

## Functional Description

The PDISO-8 is a low-cost 8-channel isolated input/output interface board designed for control and sensing applications. The PDISO-8 provides eight electromechanical relay outputs and eight optically isolated inputs, so you can both load (send) and sense signals. The PDISO-8 can be used in various applications including load switching, external-switch sensing, contact closure, and external-voltage sensing. This interface board is easily installed in any ISA-bus compatible computer.

The eight electromechanical relay outputs (contact closures) are addressed as a single I/O byte. Five of the relays are Form C contacts (SPDT) and three are Form A (SPST–normally open). The relay contacts are rated at 3A @ 125V rms with a resistive load. The state of the relays (On/Off) can be determined by reading back the data from the I/O port.

The eight individual optically isolated inputs can be read as a single I/O port byte. The inputs are not polarity sensitive and can be driven from DC or AC (50–1,000Hz) control voltages from 5 to 24V rms. Each input includes a switchable slow/fast filter with a time constant of 5ms. The filter must be selected for AC input voltages but can be switched out to obtain response times of less than 50µs for DC inputs. Additional resistance can be added to the PDISO-8 inputs externally to extend the input voltage range. The inputs can be mixed between AC and DC. The inputs can be driven from standard 12/24VAC control transformers.

**Registers.** The PDISO-8 occupies four consecutive addresses in the PC I/O address space, of which only two addresses are actually used. The base address is selected during the installation procedure and will automatically fall on a 4-bit boundary. The I/O registers of the PDISO-8 are located as follows:

### I/O MAP

| I/O ADDRESS (HEX) | FUNCTION |
|---|---|
| Base +0 | Relay Output (R/W)* |
| +1 | Isolated Inputs (R)* |
| +2 | Not Used |
| +3 | Not Used |

* (R) = Read Only (R/W) = Read/Write

Note that all ports are 8-bits (one-byte) wide and require byte-oriented read/write operations rather than word (16-bit) operations.

Data is written to all eight relays as a single byte. Each bit within the byte controls a single relay so that a high bit (= 1) energizes a particular relay and a low bit (= 0) turns it off as follows:

### RELAY OUTPUT REGISTER

| | BIT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Base Address +0 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| Relay | 0P7 | 0P6 | 0P5 | 0P4 | 0P3 | 0P2 | 0P1 | 0P0 |

For example, if bit 4 (D4) was turned on by writing 10H (00010000B) to the base I/O address, then the relay controlling 0P4 would be energized. All other relays would be de-energized. Writing 3AH (00111010B) would turn on relays 0P1, 0P3, 0P4, and 0P5 and leave relays 0P0, 0P2, 0P6, and 0P7 turned off.

The relay output port can be read back to determine the current state of the relays. This is a useful feature if you want to switch one relay without disturbing the others.

**Digital Input Register.** The digital input states are read as a single byte from the port at address BASE ADDRESS +1. Each of the eight bits within the byte corresponds to a particular digital input, a high bit (= 1) signifies the input is energized, a low bit (= 0) signifies the input is de-energized:

### DIGITAL INPUT REGISTER

| | BIT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Base Address +1 | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| Digital Input | 1P7 | 1P6 | 1P5 | 1P4 | 1P3 | 1P2 | 1P1 | 1P0 |

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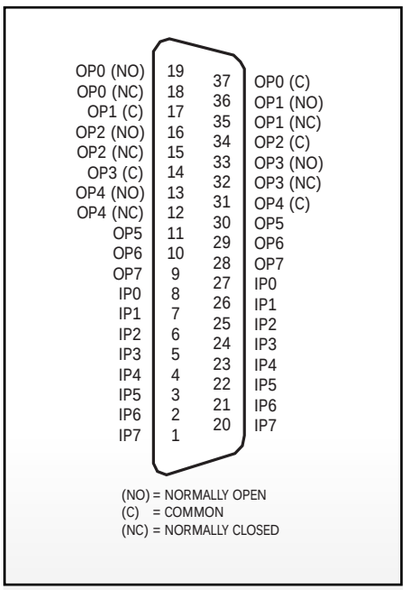
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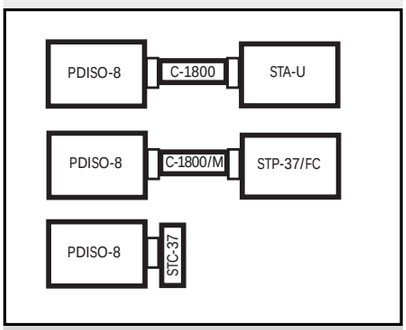
# PDISO-8 8-Channel Isolated Digital I/O Board

## Connector Pin Assignments

All I/O lines from the PDISO-8 connect through a standard 37-pin D-type male connector that resides on the printed circuit board. Connection to the PDISO-8 is made via Keithley part number SFC-37 solder-type mating connector. The optional STP-37/FC and C1800/M or STA-U and C1800 provide screw terminal connections for easy configuration and expansion. The STC-37 Screw Terminal Connector provides screw terminal connections right at the I/O connector.




## Configuration Guide




## Specifications

### RELAYS

**QUANTITY:** 8.
**CONTACT TYPE:** Dry.
**CONTACT RATING:** 3A @ 125Vrms (resistive).
**CONTACT RESISTANCE:**100mΩ max (initial).
**CONTACT ARRANGEMENT:** Channels 0P0–4 are SPDT (Form C changeover). Channels: 0P5–7 are SPST (Form A, normally open).
**OPERATING TIME:** 20ms max.
**RELEASE TIME:** 10ms max.
**LIFE RATING: Mechanical:** $10^7$ operations min. **Electrical:** $10^5$ min @ full load.
**VIBRATION:** 10–55Hz (Dual amplitude 1.5mm).
**SHOCK:** 10G (11ms).

### CONTROL INPUTS

**QUANTITY:** 8.
**TYPE:** Non-polarized opto-isolated (inputs are not TTL/CMOS compatible).
**INPUT RANGE:** 5–24VDC or VAC (50–1,000Hz).
**INPUT RESISTANCE:** 470Ω min.
**RESPONSE TIME:** 250µs typ without filter, 10ms typ with filter.

### ENVIRONMENTAL

**TEMPERATURE:** 0 to +50°C (Operating); –20 to +70°C (Storage).
**HUMIDITY:** 0 to 90% non-condensing.
**EMC:** Conforms to European Union Directive 89/336/EEC.
**SAFETY:** IEC Installation Category I. (Voltage must be isolated from the mains by a transformer.)
**WEIGHT:** 7.5oz (213g).
**DIMENSIONS:** 6.0in L × 4.25in H × 1.1in D; (15.2cm × 10.8cm × 2.8cm).

### ACCESSORIES AVAILABLE

| | |
|---|---|
| C1800 | PDISO-8 to STA-U Cable |
| C-1800/M | PDISO-8 to STP-37/FC Cable |
| STA-U | Universal Screw Terminal Accessory |
| STP-37/FC | Screw Terminal Panel with female D37 connector |
| STC-37 | Direct Connect Screw Terminal Connector |

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