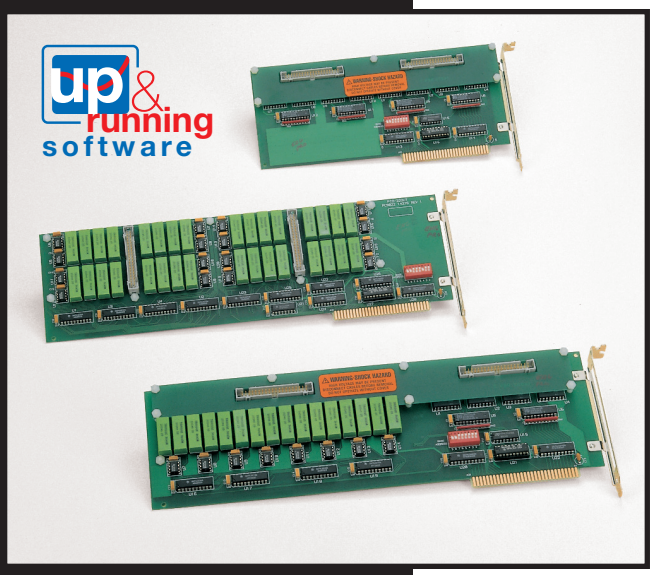
PIO-32 Series

32-Channel Isolated Digital I/O Boards



- Three models available: 32 in, 32 out, or 16 in/16 out
- Opto-isolated inputs accept control voltage up to 28VDC
- Relay outputs rated 10W max. at 0.5A or at 30V rms (resistive)
- Onboard shields prevent contact with user voltages
- High density—requires only one slot inside the PC
- All connections through onboard ribbon headers
- Programmed like two PIO-12s (emulates PA and PB of 8255 Mode 0)
- Lower cost than SSR modules
- 32-bit DriverLINX drivers plus a suite of bundled software including ExceLINX, VisualSCOPE, TestPoint, and LabVIEW drivers

Functional Description

Keithley's PIO-32 Series boards provide 32 channels of isolated digital I/O on a single board that plugs directly into any available I/O slot of any ISA-bus compatible computer. Three versions are offered: the PIO-32IN provides 32 channels of optically-isolated digital input, the PIO-32OUT provides 32 channels of electromechanical relay output, and the PIO32I/O provides 16 channels of optically isolated digital input and 16 channels of electromechanical relay output.

All inputs and outputs are isolated to eliminate ground loops which can cause measurement errors. Onboard safety shields protect the user from inadvertently touching conductors that can have potentially hazardous voltages. The PIO-32 Series boards set a new standard in price/performance for isolated digital I/O, at a much lower cost-per-point than externally racked solid state relay (SSR) modules or PLCs.

The isolated digital inputs of the PIO-32IN and PIO-32I/O can be driven by control voltages of 3.5 to 28VDC. Additional resistance can be added externally to extend the input voltage range. Response time of the inputs is typically 0.33ms.

The digital outputs of the PIO-32OUT and PIO-32I/O are implemented with electromechanical reed relays. The relays are configured as Form A (SPST–normally open) contacts. The contacts can switch up to 10 watts max. at 0.5A or 30V rms into a resistive load. Operation time of each relay is typically 1ms. The current state of the relays (on/off) can be determined by reading back the data from the I/O ports.

All connections to the PIO-32 Series boards are made through two onboard 40-pin ribbon headers. The optional C-3200 ribbon cable and STP-37/FC Screw Terminal Panel accessory provide a convenient means for wiring to your application. The STP-37/FC uses a 37-pin D-type female connector to prevent high user voltages from being exposed when the cable is unplugged. The STP-37/FC is encased in a high-impact plastic base convenient for desktop use, or it can be easily mounted on standard DIN rails or via screws. Two cables and two screw terminal panels should be used to support the full 32-channel capability of a PIO-32 Series board. However, one cable and one STP can be used if only 16 channels of a similar type (input or output) are required.

ACCESSORIES AVAILABLE

C-3200*	PIO-32 Series Board to STP-37/FC Cable
STP-37/FC*	Screw Terminal Panel with female D37
TESTPOINT	TestPoint Software Package

*Two of each required to support 32-channel capability.

Ordering Information

PIO-32IN	Isolated 32-Channel Digital Input Board
PIO-32OUT	Isolated 32-Channel Relay Output Board
PIO-32I/O	Isolated 16-Channel Digital Input and 16-Channel Relay Output Board

APPLICATIONS

- Factory automation
- Monitoring of proximity switches, thermostats, push buttons, limit switches, etc.
- Switching of solenoids, lamps, heaters, motor controls, etc.
- Laboratory automation
- Production test
- Process monitoring/control
- Energy management
- Security systems

32 channels of isolated digital I/O

PCI/ISA/PCMCIA

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A GREATER MEASURE OF CONFIDENCE

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Specifications

CONTROL INPUTS

QUANTITY:
- **PIO-32IN:** 32.
- **PIO-32OUT:** 0.
- **PIO-32I/O:** 16.

TYPE: Opto-isolator.
INPUT HIGH (MIN): 3.5VDC, 1.25mA.
INPUT HIGH (MAX): 28VDC, 15mA.
INPUT LOW: 0.8VDC or open.
INPUT RESISTANCE: 2.0kΩ, 0.5W
RESPONSE FREQUENCY: <3kHz.

RELAY OUTPUTS

QUANTITY:
- **PIO-32IN:** 0.
- **PIO-32OUT:** 32.
- **PIO-32I/O:** 16.

CONTACT CONFIGURATION: FORM A (SPST–normally open).
CONTACT TYPE: Dry.
CONTACT RATING: 10W max. at 0.5A or 30V rms, 42.4V peak. 60VDC (resistive load).
CONTACT RESISTANCE: 100mΩ max initial.
OPERATION TIME: 1ms max including bounce.
RELEASE TIME: 1ms max.
MECHANICAL LIFE: 10^9 operations.
ELECTRICAL LIFE: 10^7 operations at rated load.

ENVIRONMENTAL

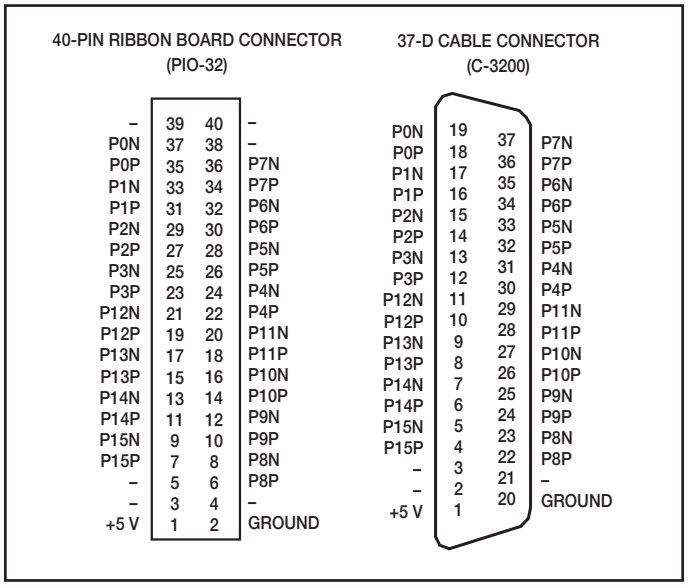
OPERATING TEMPERATURE: 0 to 50°C.
STORAGE TEMPERATURE: –20 to +70°C.
HUMIDITY: 0 to 90%, non-condensing.
EMC: Conforms to European Union Directive 89/336/EEC.
SAFETY: IEC Installation Category I. (Voltage source must be isolated from the mains by a transformer.)
DIMENSIONS:

PIO-32IN:	9in L × 4.25in H × 0.75in D (22.9 cm × 10.8cm × 1.9cm).
PIO-32OUT AND PIO-32I/O:	13.3in L × 4.25in H × 0.75in D (33.8cm × 10.8cm × 1.9cm).

WEIGHT: **PIO-32IN:** 6oz.
PIO-32OUT: 12oz.
PIO-32I/O: 10oz.

Connector Pin Assignments

3M part number 3417-7000 is the 4-pin board mating connector. Alternatively, use Keithley's C-32NN cable (NN specifies additional length over 30 inches) and STP-37/FC screw terminal panel. Two cables and two STPs are needed for 32-channel capability.



For pin assignments of channels 16-31, add sixteen to the channel numbers shown, (i.e. P0N becomes P16N, etc.)

Configuration Guide