

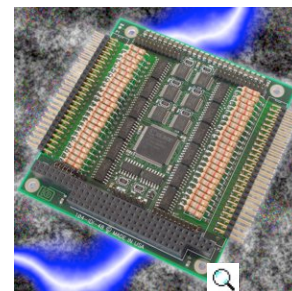
104-IDI-48 FAMILY

48-Channel Optically Isolated Digital Input Boards

FEATURES

[Specifications](#)

- 48 individually optically isolated AC/DC inputs
- Polarity-insensitive AC/DC inputs accept up to 60 VDC or AC rms
- AC or voltage transient filtering
- Optically isolated channel-to-channel and channel-to-ground
- Compatible with industry-standard I/O racks
- Factory Options: (call for pricing and availability)
 - 0 to 70°C and -40 to +85°C versions available
 - Change-of-state detection (COS IRQ) on selected inputs
 - Higher input ranges
 - Right-angle or vertical I/O connectors



MANUALS
[104-IDI-48.PDF](#)

FUNCTIONAL DESCRIPTION

The 104-IDI-48 family boards are 48-channel PC/104 utility boards which feature 48 individually optically isolated digital inputs. They are ideal for use in control and instrumentation applications where high voltage protection is required. Individual channel-to-channel isolation allows every channel to be physically and electrically separated from the others.

Enabled inputs feature a change-of-state detection capability (denoted by a "C" at the end of the model number) which provides a means to automatically interrupt the host computer in real time. When one or more input bits change state, an interrupt is generated to automatically wake up your application. This can greatly simplify your application program and eliminate the need to continuously poll inputs. Each input is rectified by photo-coupler diodes, and is therefore polarity-insensitive - positive, negative, and AC voltage inputs are all acceptable. Zero crossings and glitches are eliminated by input filters. The input range is up to 60 VDC or AC rms at frequencies of 40 Hz to 10 kHz.

Model	No. of Bits	Max Input Voltage	Change-of-State Interrupt Capability	AC Filter
104-IDI-48A	48	31V	No	Yes
104-IDI-48AC	48	31V	Yes	Yes
104-IDI-48B	48	60V	No	Yes
104-IDI-48BC	48	60V	Yes	Yes

These boards are especially useful in applications where high common-mode external voltages are present. Isolation is required to guard electronics from transient voltage spikes and offers greater common-mode noise rejection in electronically noisy surroundings containing industrial machinery and inductive loads. These applications include factory automation, energy management, industrial ON/OFF control, security systems, manufacturing test, and process monitoring. In addition to protecting industrial applications from accidental contact with high external voltages, the isolation provided eliminates troublesome ground loops. The optically-isolated digital inputs are split into two 50-pin IDC-type headers, each containing 24 channels. Accessories available include a wide variety of ribbon cables and screw terminal boards for quick and easy connectivity.

These PC/104 boards can be installed in any embedded system that supports PC/104 or PC/104+ modules. I/O connectors ship standard as right-angle pin type but can also be ordered as vertical to avoid obstructions by other system components or enclosure constraints. This high-density I/O board is available with a variety of options such as an economy version (no change-of-state), extended temperature (-40°C to +85°C), higher input ranges, etc. Let us know what you need for your OEM application and we'll supply it, saving you time and money by buying only what you need.

If you'd like this board delivered in an embedded system, we'd be glad to provide integration at a competitive rate. Consider using it as part of our ETX-NANO-104 motherboard, our rugged E4-DAS Fanless Embedded Computer, or our IE-DAS Embedded System. For complete details on that and our other fine products give us a call at 800-326-1649 and speak with an application specialist that can help find a solution that is right for you and your project.

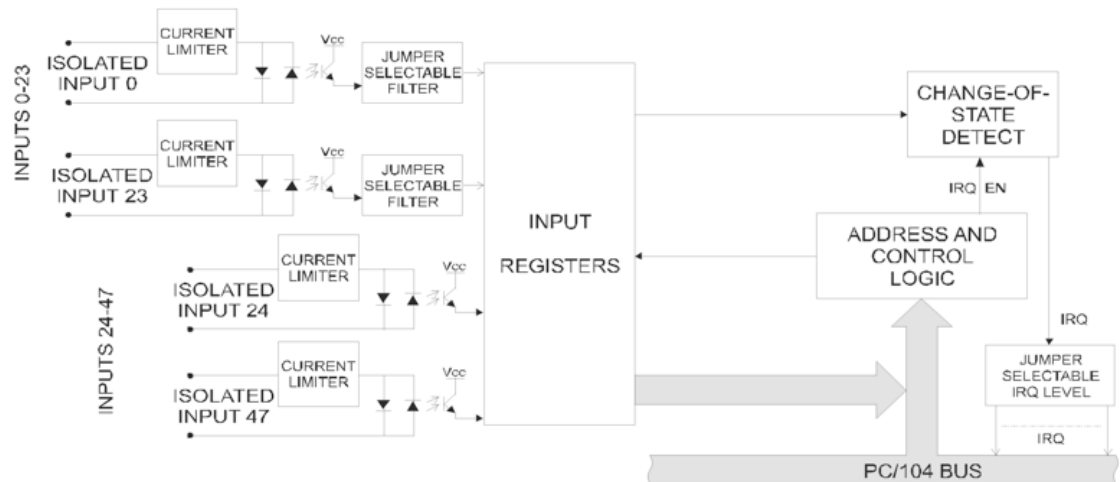
APPLICATIONS

- Factory automation
- Energy management
- Industrial ON/OFF control
- Security systems
- Manufacturing test
- Process monitoring

SOFTWARE These boards are supported for use in most operating systems and include a free software package compatible with DOS, Linux, and Windows 98/NT/2000/XP/2003. This package contains sample programs and source code in "C" for DOS, and Visual Basic, Delphi, C++ Builder, and Visual C++ for Windows. Also incorporated is a graphical setup program in Windows. Linux support includes installation files and basic samples for programming from user level via an open source kernel driver.

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Specifications



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Isolated Digital Inputs

- Number of inputs: 48
- Type: Non-polarized, optically isolated from each other and from the computer. (CMOS compatible)
- Voltage Range:
 - 48A:
 - Logic Low: 0 to 1.5 VDC or AC rms (40 to 10,000 Hz)
 - Logic High: 3 to 31 VDC or AC rms (40 to 10,000 Hz)
 - 48B:
 - Logic Low: 0 to 5 VDC or AC rms (40 to 10,000 Hz)
 - Logic High: 11 to 60 VDC or AC rms (40 to 10,000 Hz)
- Isolation: Opto-isolators and connectors are rated for at least 500V channel-to-ground or channel-to-channel, but isolation voltage breakdowns will vary and is affected by factors like cabling, spacing of pins, spacing between traces on the PCB, humidity, dust and other environmental factors. This is a safety issue so a careful approach is required. For CE certification, isolation was specified at 60 VDC or AC rms. The design intention was to eliminate the influence of common mode. Use proper wiring techniques to minimize voltage between channels and to ground. Tolerance of higher isolation voltage can be obtained on request by applying a conformal coating to the board.
- Input Resistance:
 - 48A: 1.8K Ohms in series with opto coupler
 - 48B: 15K Ohms in series with opto coupler
- Non-Filter Response Times:
 - Rise Time: 10 uS
 - Fall Time: 30 uS
- Filter Time Constant: 4.7ms

Interrupts

- Interrupts: Software controlled with jumper IRQ selection (models 104-IDI-48AC and 104-IDI-48BC)

Power Required

- +5VDC @ 300mA typical

Environmental

- Operating Temp: 0° to +70°C, (-40 to +85°C Optional)
- Storage Temp: -55 to +150°C
- Humidity: 5% to 95% RH, without condensation
- Board Dimension: PC/104 format, 3.550" by 3.775"



CE testing & approval must be done at the system level, in the designed enclosure, and is not done on individual boards.

Part Number	Price(USD)
104-IDI-48AC	349.00
104-IDI-48A	289.00
104-IDI-48BC	349.00
104-IDI-48B	289.00

[View / Download Manual \(in .PDF format\)](#)

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