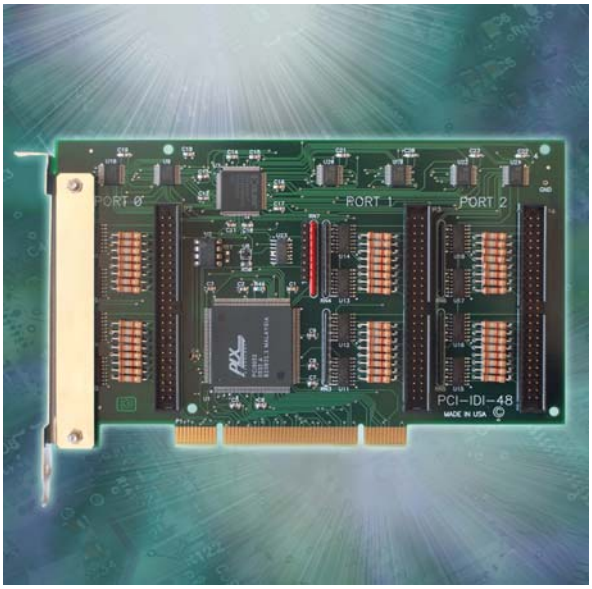
PCI-IDI SERIES

16, 32, or 48 Channel Isolated
Digital Input Cards

FEATURES

- **16, 32, or 48 individually optically isolated AC/DC inputs**
- **Change-of-state detection (IRQ) on selected inputs (certain models)**
- **Polarity insensitive AC/DC inputs accept up to 60 VDC or AC rms**
- **Optically isolated channel to channel and channel to ground**
- **AC or voltage transient filtering**
- **Universal PCI, PCI-X, 3.3V and 5V compatible**



FUNCTIONAL DESCRIPTION

PCI-IDI-xx Series cards offer a range of 16, 32, or 48 individual, optically isolated inputs. These cards 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.

Inputs feature a change-of-state detection capability (denoted by a “C” after the model number) which provides a means to automatically interrupt the host computer in real time. When one or more input bits change state, a PCI interrupt is generated to automatically wake up your application. This can greatly simplify your application program and eliminate need to continuously poll inputs.

Each input is rectified by photo-coupler diodes, therefore polarity insensitive—either positive, negative, and AC voltage inputs are acceptable. The input range is up to 60VDC or AC rms at frequencies of 40 to 10 kHz.

These cards 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. Connections are available via 50-pin IDC type headers, ribbon cables, and a variety of screw terminal boards.

SOFTWARE

These cards are supported for use in most operating systems and include a free DOS, Linux (including Mac OS X) and Windows 98/NT/2000/XP/2003 compatible software package. 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. Third party support includes a Windows standard DLL interface usable from the most popular application programs, and includes example LabVIEW VIs. Embedded OS support includes Windows XPe.

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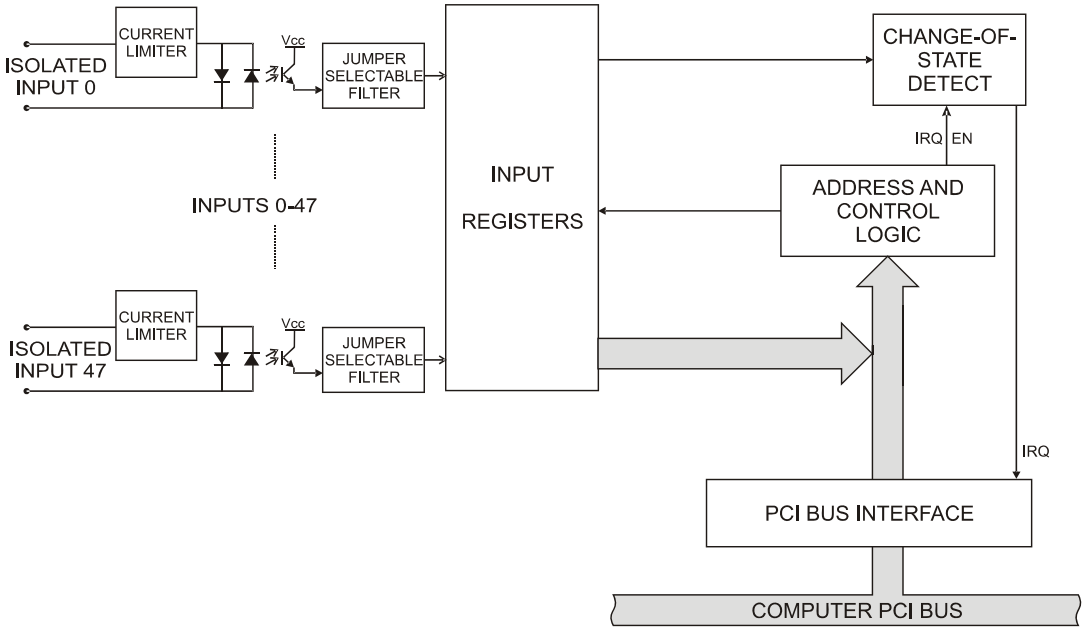
BLOCK DIAGRAM



SPECIFICATIONS

Digital Isolated Inputs

Number of inputs:	16, 32, or 48	
Type:		Non-polarized, optically isolated from each other and from the computer (CMOS compatible)
Voltage Range:		
	xxA:	Logic Low: 0 to 1.5VDC or AC RMS (40Hz to 10kHz) Logic High: 3 to 31VDC or AC RMS (40Hz to 10kHz)
	xxB:	Logic Low: 0 to 5VDC or AC RMS (40Hz to 10kHz) Logic High: 11 to 60VDC or AC RMS (40Hz to 10kHz)
Isolation:		*Optically isolated channel-to-ground or channel-to channel
Input Resistance:		
	xxA:	1.8K ohms in series with optocoupler
	xxB:	15K ohms in series with optocoupler
Non-Filter Response Times:		Rise Time = 10 uS / Fall Time = 30 uS
Filter Time Constant:		4.7ms
Power Required:		+5VDC @ 300mA typical

Environmental

Operating Temperature:	0˚C to +70˚C	
Storage Temperature:		-55˚C to +150˚C
Humidity:		5% to 95% RH, non-condensing
Board Dimension:		6.875" (174.6mm) long

*Note on Isolation: Opto-Isolators and connectors are rated for at least 500V, 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 60VDC 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.

Ordering guide:

MODEL	No. of Bits	Max Input Voltage	Change-of State Interrupt Capability	AC Filter
PCI-IDI-16A	16	31V	No	Yes
PCI-IDI-16AC	16	31V	Yes	Yes
PCI-IDI-32A	32	31V	No	Yes
PCI-IDI-32AC	32	31V	Yes	Yes
PCI-IDI-48A	48	31V	No	Yes
PCI-IDI-48AC	48	31V	Yes	Yes
PCI-IDI-16B	16	60V	No	Yes
PCI-IDI-16BC	16	60V	Yes	Yes
PCI-IDI-32B	32	60V	No	Yes
PCI-IDI-32BC	32	60V	Yes	Yes
PCI-IDI-48B	48	60V	No	Yes
PCI-IDI-48BC	48	60V	Yes	Yes

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