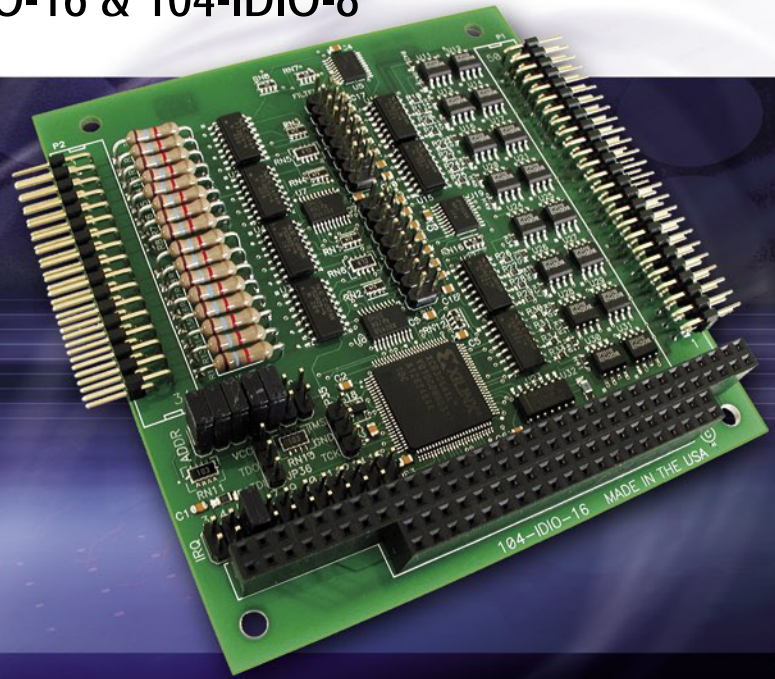


104-IDIO-16 & 104-IDIO-8



**KEY FEATURES:**

- 16 or 8 optically-isolated, non-polarized CMOS compatible digital inputs accept  $\pm 31\text{VDC}$  or AC rms
- IRQ on input change of state (COS) eliminates the need for constant polling
- Slow/fast filter to accommodate AC voltages and noisy DC inputs
- 16 or 8 optically-isolated fully protected high-current solid state outputs

**FACTORY OPTIONS:**

- 0 to 70°C and -40 to +85°C versions available
- Economy version without COS feature
- Outputs only versions
- Expanded input voltage levels

The 104-IDIO-16 is a low cost 32-channel PC/104 utility board featuring 16 optically isolated inputs and 16 optically isolated solid state outputs. The isolated, non-polarized inputs may be driven by either DC sources of 3-31V (or higher by special order) or AC sources at frequencies of 40Hz to 10KHz. Optically isolating the digital inputs from each other and from the computer assures smooth, error-free data transmission in noisy, real-world environments. The 16 input channels are available via a 34-pin IDC type header. The fully protected solid state outputs, capable of driving 1A each, are inherently more reliable than electromechanical relays and give system architects a more robust product to design with. The solid state outputs are available via a 50 pin IDC type header.

Each input circuit includes a jumper selectable slow/fast filter to accommodate AC inputs and is also useful for slow DC inputs in noisy environments. The filter may be manually disabled to increase the board's typical response time to 10 $\mu\text{s}$  when used with faster DC inputs. The input impedance is 1.8K Ohms to accommodate a wide input range.

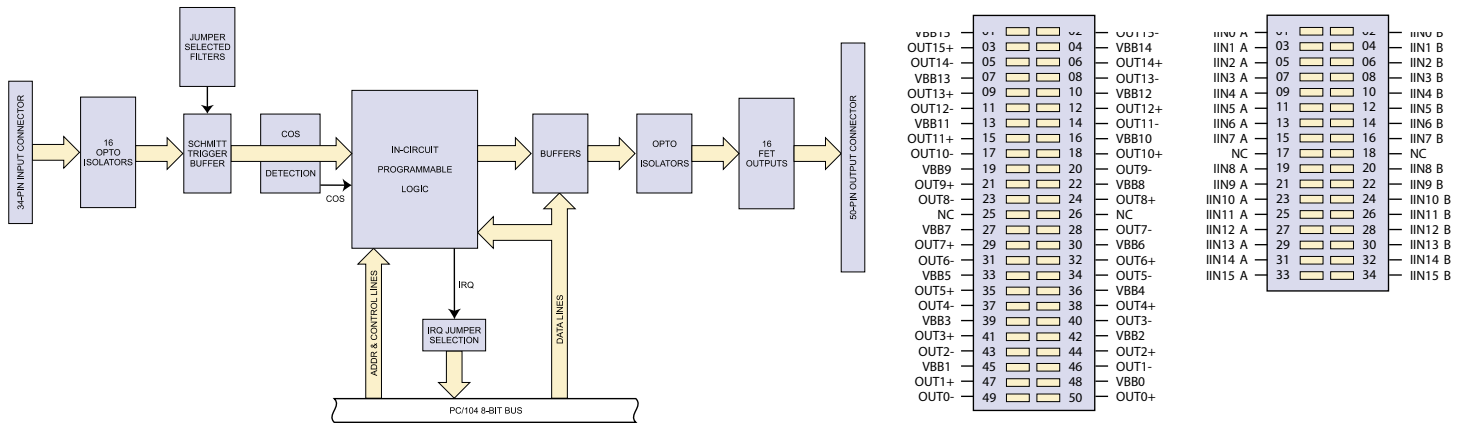
The board is installed by jumper selecting base addresses and IRQ. System interrupts are software controlled, enabling the board to generate an interrupt whenever one or more of the isolated digital inputs changes state. This eliminates the need for constant polling and greatly frees up system resources. Models 104-IDIO-16E and -8E are economy versions available without the interrupt Change of State Detection feature. Models 104-IDIO-16 and -8 feature 16 or 8 isolated digital outputs only.

**SOFTWARE**

The 104-IDIO-16 Series are supported for use in most operating systems and include a free DOS, Linux and Windows 95/98/Me/NT/2000/XP/2003 compatible software package. This includes sample programs and source code in "C" and Pascal for DOS, and Visual Basic, Delphi, C++ Builder, and Visual C++ for Windows. Also included is a graphical setup program in Windows. Embedded OS support includes Windows XP and CE. Linux support includes installation files and basic samples for programming from any user level via an open source kernel driver.

## 104-IDIO-16 & 104-IDIO-8

### Block Diagram & Pin Configuration



### Specifications

#### Opto-Isolated Inputs

|                 |  |
|-----------------|--|
| Inputs          | 16 or 8 non-polarized opto-isolated with change of state (COS) detection |
| Input voltage   | 3V to 31V DC or AC rms (40 to 10KHz)                                     |
| Input impedance | 1.8K Ohm   |
| AC input filter | Independently selectable on a per-channel basis                          |
| Response time   | 10µs without filter, 4.7ms with filter                                   |
| Isolation       | Opto-Isolators specified to 500V   |

#### General

|                       |  |
|-----------------------|--|
| I/O connections       | 50-pin header for outputs & 34-pin header for inputs |
| Power required        | +5VDC at 150mA (all FETs ON)                         |
| Operating temperature | 0 to +70°C, optional -40 to +85°C                    |
| Storage temperature   | -50 to +120°C  |
| Humidity              | 5% to 95% RH, non-condensing                         |

#### Opto-Isolated Solid State Outputs

|                     |  |
|---------------------|--|
| Outputs             | 16 or 8, fully protected   |
| Type                | Solid state FETs   |
| Protection features | Short-circuit, over-temperature, ESD and inductive load capability |
| Output voltage      | 5-35 VDC continuous, 50VDC max (user supplied)                     |
| Output current      | 1A   |
| Current limit       | 5A   |
| Rise time           | 7µs typ  |
| Fall time           | 10µs typ   |

### Ordering Guide

|              |   |
|--------------|---|
| 104-IDIO-16  | 32 channel opto-isolated digital I/O with change of state detection |
| 104-IDIO-16E | As above except economy version without change of state feature     |
| 104-IDIO-8   | 16 channel opto-isolated digital I/O with change of state detection |
| 104-IDIO-8E  | As above except economy version without change of state feature     |
| 104-IDO-16   | 16 isolated digital outputs only version                            |
| 104-IDO-8    | 8 isolated digital outputs only version                             |