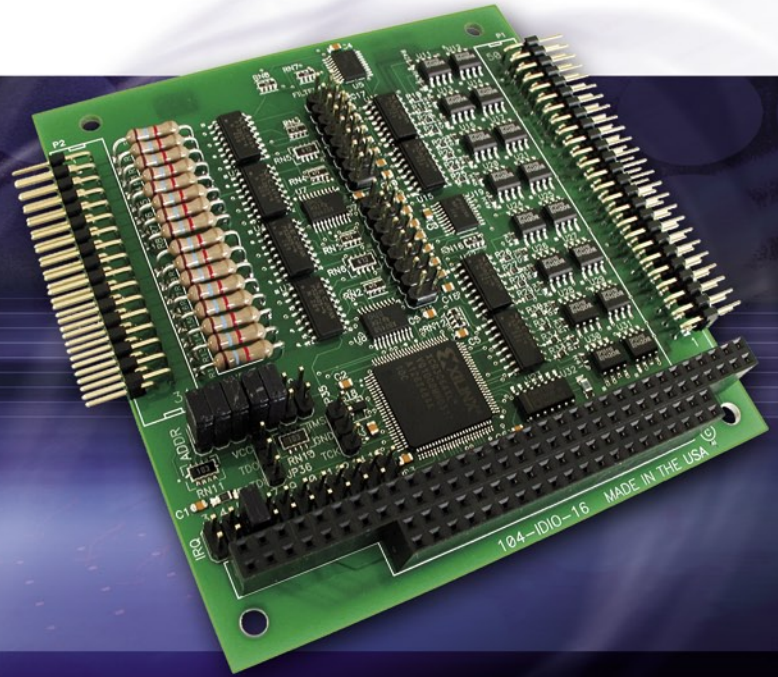
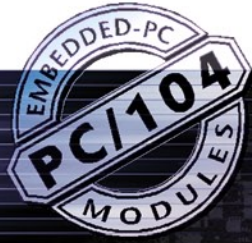


104-IDIO-16 &
104-IDIO-8

32- or 16-Channel PC/104 OPTICALLY ISOLATED DIGITAL I/O WITH COS



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 versions 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 μs 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.

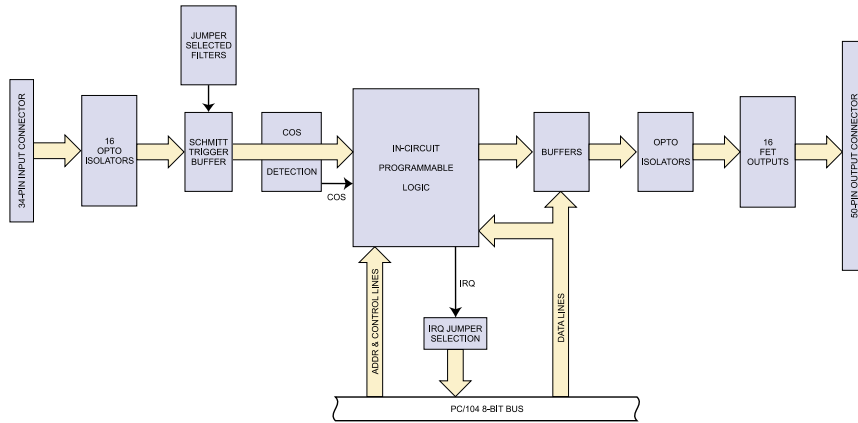
SOFTWARE

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 XPe and CE. Linux support includes installation files and basic samples for programming from any user level via an open source kernel driver.



ACCES I/O Products, Inc. 10623 Roselle Street San Diego, CA 92121
Tel: (858) 550-9559 (800) 326-1649 Fax: (858) 550-7322
Email: contactus@accessio.com Website: www.accessio.com

Block Diagram & Pin Configuration



ISOLATED OUTPUTS

VBB15	01	02	OUT15-
OUT15+	03	04	VBB14
VBB13	05	06	OUT14+
OUT13+	07	08	OUT13-
OUT12-	09	10	VBB12
VBB11	11	12	OUT12+
OUT11+	13	14	OUT11-
OUT10-	15	16	VBB10
VBB9	17	18	OUT10+
OUT9+	19	20	OUT9-
OUT8-	21	22	VBB8
NC	23	24	OUT8+
VBB7	25	26	NC
OUT7+	27	28	OUT7-
OUT6-	29	30	VBB6
VBB5	31	32	OUT6+
OUT5+	33	34	OUT5-
OUT4+	35	36	VBB4
VBB3	37	38	OUT4-
OUT3+	39	40	OUT3-
OUT2-	41	42	VBB2
VBB1	43	44	OUT2+
OUT1+	45	46	OUT1-
OUT0-	47	48	VBB0
	49	50	OUT0+

ISOLATED INPUTS

IIN0 A	01	02	IIN0 B
IIN1 A	03	04	IIN1 B
IIN2 A	05	06	IIN2 B
IIN3 A	07	08	IIN3 B
IIN4 A	09	10	IIN4 B
IIN5 A	11	12	IIN5 B
IIN6 A	13	14	IIN6 B
IIN7 A	15	16	IIN7 B
NC	17	18	NC
IIN8 A	19	20	IIN8 B
IIN9 A	21	22	IIN9 B
IIN10 A	23	24	IIN10 B
IIN11 A	25	26	IIN11 B
IIN12 A	27	28	IIN12 B
IIN13 A	29	30	IIN13 B
IIN14 A	31	32	IIN14 B
IIN15 A	33	34	IIN15 B

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



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