

## FEATURES AND OPTIONS

## ETH-IIRO-16 FAMILY

### FEATURES

- Ethernet 10/100 RJ45 connector for interfacing to CPU or network
- 16 optically isolated inputs (3V to 31V)
- 16 Form C electro-mechanical relays switch 1A
- Internal, removable terminal board for easy wiring
- PC/104 module size and mounting compatibility
- Small (4" x 4" x 1.7") rugged industrial enclosure
- DC Jack and screw terminals for external power

### FACTORY OPTIONS

- Eight and four input/output versions
- Input only and relay only versions
- Economy "E" version without the screw terminal board
- OEM (board only) version with PC/104 mounting holes and PCB footprint for added flexibility in embedded applications
- Extended operating temperature (-40°C to +80°C)
- Wide input (7Vdc to 30Vdc) external power
- RoHS compliant version
- DIN Rail Mounting provision



## FUNCTIONAL DESCRIPTION

The ETH-IIRO-16 Series (4, 8 and 16 channels) is an ideal solution for adding portable, easy-to-install, isolated input and relay output digital I/O capabilities to any Ethernet network. It is excellent for controlling external relays, driving indicator lights, fuel pumps, high voltage control and more. Typical industries are Automotive, Industrial, and Factory and Home automation.

This unit features 16 Form C (SPDT) electromechanical relays and 16 optically isolated digital inputs. The isolated, non-polarized inputs may be driven by either DC sources of 3-31 V (or higher by special order) or AC sources at frequencies of 40 Hz 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 input channels are accessed via a 34-pin IDC type vertical header. The fully protected isolated outputs are de-energized at power-up to prevent an unintended control output signal. Data to the solid state outputs are latched and are available via a 50-pin IDC type vertical header. To simplify field wiring connections, the ETH-IDIO-16 family includes an internal, removable termination board (ETH-STB-84), that mounts directly to the headers.

The ETH-IIRO-16 is designed to be used in rugged industrial environments but is small enough to fit nicely onto any desk or testing station. Its board is PC/104 sized (3.550 by 3.775 inches) and ships inside a steel powder-coated enclosure with an anti-skid bottom.

The ETH-IIRO-16 has a DC Jack and screw terminals to connect the required external power. This power can be provided by our PWR-ACDC-5V, your +5Vdc regulated power supply, or by ordering the -WI option where you provide from 7 Vdc to 30 Vdc.

### OEM ETH/104 FORM FACTOR

The OEM (board only) version is perfect for a variety of embedded applications. What makes the OEM option unique is that its PCB size and mounting holes match the PC/104 form factor (without the bus connections). The board can be added to any PC/104 type stack by connecting it to an available 10/100 base T port typically available on embedded CPU form factors such as EPIC, and PC/104. It can also be installed using standoffs inside other enclosures or systems.

## SOFTWARE

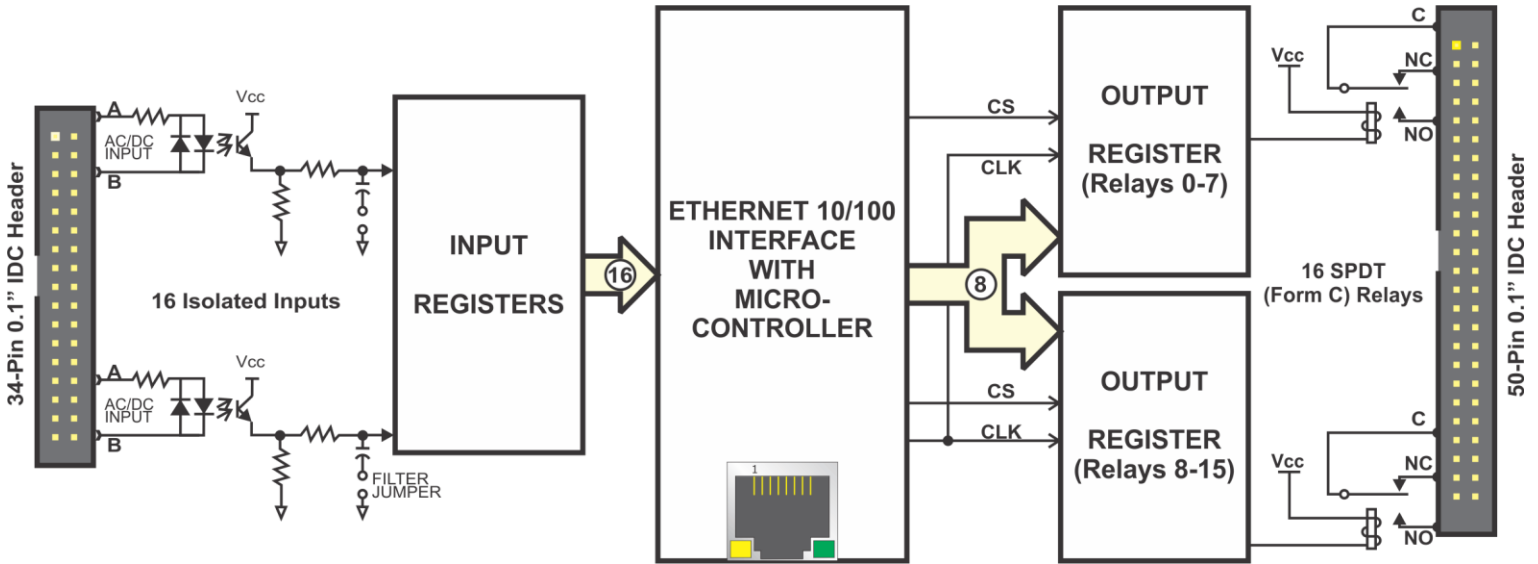
Because of Ethernet's ubiquitous nature these boards are supported for use in all operating systems -- including Windows, Linux, Unix, iOS, Android, -- even Raspberry PI, etc. The software package includes free Linux and Windows software with sample programs and source code in C# and Delphi for Windows. Also provided is a graphical setup program in Windows and extensive Ethernet-packet level API documentation. Third party application support includes a Windows standard DLL API usable from most popular application programs. Embedded OS support includes Windows Embedded Standard, and all applications, operating systems, and PLCs and all other devices capable of TCP/IP communication.

## SPECIAL ORDER

Please contact ACCES with your precise requirement. Examples of special orders are conformal coating, custom software or product labeling, and more. We will work with you to provide exactly what is required.

## OPTIONAL ACCESSORIES

The ETH-IIRO-16 is available with optional cable assemblies, screw terminal boards, and a DIN rail mounting provision.



## Isolated Inputs

<b>Channels</b>	4, 8, or 16
<b>Type</b>	Non-polarized, optically isolated from each other and from the computer (CMOS compatible)
<b>Voltage</b>	3 to 31 DC or AC RMS (40 to 1000 Hz)
<b>Isolation</b>	500V* (see manual) channel-to-ground and channel-to-channel
<b>Resistance</b>	1.8K ohms in series with opto-coupler
<b>Response Times</b>	Rise Time    Fall time
Filtered	4.7 ms    4.7 ms
Non-Filtered	10 us    30 us

## Form C Relay Outputs

<b>Channels</b>	4, 8, or 16
<b>Type</b>	SPDT Form C
<b>Contact Type</b>	Single crossbar; Ag with Au clad
<b>AC Load</b>	0.5 A at 125 VAC (62.5 VA max.)
<b>DC Load</b>	1 A at 24 Vdc (30 W max.)
<b>Switching Voltage</b>	125 VAC, 60 Vdc max.
<b>Switching Current</b>	1A max
<b>Contact Resistance</b>	100 mOhm max
<b>Contact Life: mech'l</b>	5 million operations min
<b>Operating Time</b>	5 msec max
<b>Release Time</b>	5 msec max

## Bus Type

<b>Ethernet</b>	10/100 Base T, Autodetecting, 1.5Kv isolation
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## Environmental

<b>Temperature</b>	Operating	0°C to +70°C -40°C to +80°C (-T option)
	Storage	-40° to +85°C
<b>Humidity</b>		Maximum 95% RH, non-condensing
<b>Dimensions</b>	Board	3.550" x 3.775"
	Enclosure	4.00" x 4.00" x 1.7"

## Power

<b>External Power</b>	5 Vdc regulated (or 7 - 30 Vdc for -WI option) required
<b>All relays OFF</b>	5V@300mA typical (add 30mA per relay)
<b>All relays ON</b>	5V@780mA typical

## Power Options (External Power required)

<b>No option</b>	If you have your own +5 Vdc regulated power supply
<b>PWR-ACDC-5V</b>	ACCES I/O +5 Vdc regulated power supply
<b>-WI</b>	Wide input power (7 - 30 Vdc)

## Ordering Guide

Model	Isolated Inputs	Form C Relay Outputs
ETH-IIRO-16	16	16
ETH-IIRO-8	8	8
ETH-IIRO-4	4	4
ETH-RO-16	-	16
ETH-II-16	16	0

## Options

<b>-OEM</b>	Board only version (no enclosure and screw terminal board)
<b>-E</b>	Economy model (no screw terminal board)
<b>-T</b>	Extended Temperature (-40°C to +80°C)
<b>-WI</b>	Wide input external power (7 to 30VDC)

## Optional Accessories

<b>ETH-STB-84</b>	Internal plug-in screw terminal card (included with standard model)
<b>MP104-DIN</b>	DI rail mounting provision
<b>PWR-ACDC-5V</b>	External 5 Vdc power supply

## Connectivity

Isolated Inputs Connector Pins				Form C Relay Outputs Connector Pins			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	Iso In 00 A	2	Iso In 00 B	1	Relay 15-NO	2	Relay 15-C
3	Iso In 01 A	4	Iso In 01 B	3	Relay 15-NC	4	Relay 14-NO
5	Iso In 02 A	6	Iso In 02 B	5	Relay 14-C	6	Relay 14-NC
7	Iso In 03 A	8	Iso In 03 B	7	Relay 13-NO	8	Relay 13-C
9	Iso In 04 A	10	Iso In 04 B	9	Relay 13-NC	10	Relay 12-NO
11	Iso In 05 A	12	Iso In 05 B	11	Relay 12-C	12	Relay 12-NC
13	Iso In 06 A	14	Iso In 06 B	13	Relay 11-NO	14	Relay 11-C
15	Iso In 07 A	16	Iso In 07 B	15	Relay 11-NC	16	Relay 10-NO
17		18		17	Relay 10-C	18	Relay 10-NC
19	Iso In 08 A	20	Iso In 08 B	19	Relay 09-NO	20	Relay 09-C
21	Iso In 09 A	22	Iso In 09 B	21	Relay 09-NC	22	Relay 08-NO
23	Iso In 10 A	24	Iso In 10 B	23	Relay 08-C	24	Relay 08-NC
25	Iso In 11 A	26	Iso In 11 B	25		26	
27	Iso In 12 A	28	Iso In 12 B	27	Relay 07-NC	28	Relay 07-C
29	Iso In 13 A	30	Iso In 13 B	29	Relay 07-NO	30	Relay 06-NC
31	Iso In 14 A	32	Iso In 14 B	31	Relay 06-C	32	Relay 06-NO
33	Iso In 15 A	34	Iso In 15 B	33	Relay 05-NC	34	Relay 05-C
				35	Relay 05-NO	36	Relay 04-NC
				37	Relay 04-C	38	Relay 04-NO
				39	Relay 03-NC	40	Relay 03-C
				41	Relay 03-NO	42	Relay 02-NC
				43	Relay 02-C	44	Relay 02-NO
				45	Relay 01-NC	46	Relay 01-C
				47	Relay 01-NO	48	Relay 00-NC
				49	Relay 00-C	50	Relay 00-NO