FEATURES AND OPTIONS
ETH-IDIO-16 FAMILY

FEATURES

- Ethernet 10/100 RJ45 connector for interfacing to CPU or network
- 16 optically isolated inputs (3V to 31V)
- 16 fully protected and isolated High-Side FET 2A outputs
- 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 solid state output 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 (7V$_{DC}$ to 30V$_{DC}$) power
- RoHS compliant version
- DIN Rail Mounting provision

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ETH-IDIO-16
16 Isolated Inputs and Solid-State Relays (FETs)

ACCES I/O PRODUCTS, INC.

ACTIVITY   LINK ACT   5V GND

FUNCTIONAL DESCRIPTION

The ETH-IDIO-16 Series (4, 8 and 16 channels) is an ideal solution for adding portable, easy-to-install, isolated input and solid state 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 high-side MOSFET switch outputs 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 and network, 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-IDIO-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-IDIO-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 7 V$_{DC}$ - 30 V$_{DC}$.

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-IDIO-16 is available with optional cable assemblies, screw terminal boards, and a DIN rail mounting provision.
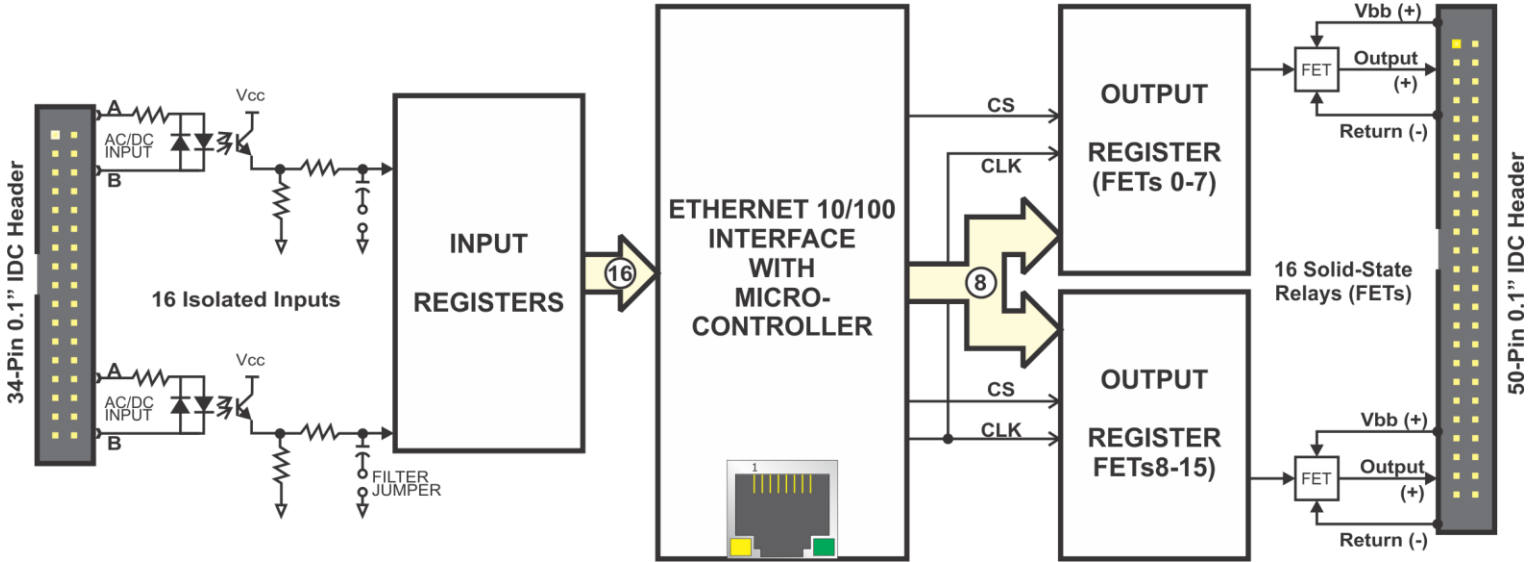
Isolated Inputs

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

Solid State FET Outputs

Channels	4, 8, or 16 Solid State FET's
Type	High Side Power MOSFET Switch. Protected against short circuit, over-temperature, ESD, and can drive inductive loads.
Voltage Range (customer supplied)	5-34VDC recommended for continuous use, 40VDC absolute max.
Current rating	2A maximum
Turn-on time	90 uS (typ)
Turn-off-time	110 uS (typ)

Bus Type

Ethernet	10/100 Base T, Autodetecting, 1.5Kv isolation

Environmental

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

Power

External Power	5 VDC regulated (or 7 - 30 VDC for –WI option) required
All FETs OFF	5V@35mA typical with all FET's off. (Add 5mA per FET)
All FETs ON	5V@115mA typical

Power Options (External Power required)

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

Ordering Guide

Model	Isolated Inputs	Solid State FET Outputs
ETH-IDIO-16	16	16
ETH-IDIO-8	8	8
ETH-IDIO-4	4	4
ETH-DO-16	0	16
ETH-II-16	16	0

Options

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

Optional Accessories

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

Connectivity

Isolated Inputs Connector Pins				High-Side FET Outputs Connector Pins			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	Iso In 00 A	2	Iso In 00 B	1	OUT 15+	2	OUT 15VBB
3	Iso In 01 A	4	Iso In 01 B	3	OUT 15-	4	OUT 14+
5	Iso In 02 A	6	Iso In 02 B	5	OUT 14VBB	6	OUT 14-
7	Iso In 03 A	8	Iso In 03 B	7	OUT 13+	8	OUT 13VBB
9	Iso In 04 A	10	Iso In 04 B	9	OUT 13-	10	OUT 12+
11	Iso In 05 A	12	Iso In 05 B	11	OUT 12VBB	12	OUT 12-
13	Iso In 06 A	14	Iso In 06 B	13	OUT 11+	14	OUT 11VBB
15	Iso In 07 A	16	Iso In 07 B	15	OUT 11-	16	OUT 10+
17		18		17	OUT 10VBB	18	OUT 10-
19	Iso In 08 A	20	Iso In 08 B	19	OUT 09+	20	OUT 09VBB
21	Iso In 09 A	22	Iso In 09 B	21	OUT 09-	22	OUT 08+
23	Iso In 10 A	24	Iso In 10 B	23	OUT 08VBB	24	OUT 08-
25	Iso In 11 A	26	Iso In 11 B	25		26	
27	Iso In 12 A	28	Iso In 12 B	27	OUT 07-	28	OUT 07VBB
29	Iso In 13 A	30	Iso In 13 B	29	OUT 07+	30	OUT 06-
31	Iso In 14 A	32	Iso In 14 B	31	OUT 06VBB	32	OUT 06+
33	Iso In 15 A	34	Iso In 15 B	33	OUT 05-	34	OUT 05VBB
				35	OUT 05+	36	OUT 04-
				37	OUT 04VBB	38	OUT 04+
				39	OUT 03-	40	OUT 03VBB
				41	OUT 03+	42	OUT 02-
				43	OUT 02VBB	44	OUT 02+
				45	OUT 01-	46	OUT 01VBB
				47	OUT 01+	48	OUT 00-
				49	OUT 00VBB	50	OUT 00+