ACCES I/O PRODUCTS, INC.

ETH-DIO-48 & ETH-DIO-24
48 or 24 Digital I/O's

FEATURES

- Ethernet 10/100 RJ45 connector for interfacing to CPU or network
- 48 or 24 channel high-current TTL digital I/O lines
- Compatible with industry standard I/O racks such as Grayhill, Opto 22, Western Reserve Controls, etc.
- Eight-bit ports software selectable for inputs or outputs
- All 48 digital I/O lines buffered with 32mA source / 64mA sink current capabilities
- Jumper selectable I/O pulled up to 5V (via 10KΩ) for contact monitoring, pulled down to ground or floating
- Resettable 0.5A fused +5VDC output per I/O connector
- OEM version (board only), features PC/104 size and mounting compatibility
- Small, (4" x 4" x 1.7") rugged, steel industrial enclosure

FACTORY OPTIONS

- Low voltage (LVTTL) for 3.3V systems
- Board only version with no enclosure
- Extended operating temperature -40˚C to +80˚C
- Available in a RoHS compliant version

FUNCTIONAL DESCRIPTION

This Ethernet I/O board is an ideal solution for adding portable, easy-to-install digital I/O capabilities to any computer or network with an available connection.

The board features 48- or 24- bits of TTL-compatible digital I/O with high-current capabilities. Each eight bit digital port can be programmed to accept inputs or to drive outputs. Power is supplied to the card via an included AC/DC regulated 5VDC external power adapter. The I/O wiring connections are via two or one industry standard 50-pin connectors. For external circuits, fused +5VDC power is available at pin 49 of each I/O connector. The resettable fuse is rated at 0.5A.

All I/O lines are buffered by a type 74ABT543A tristate buffer transceiver capable of sourcing 32 mA or sinking 64 mA. The buffers are configured under program control for input or output. Jumper selected resistors permit user configuration of I/O lines for pull-up (to +5 VDC), pull-down (to ground) or floating depending on the application requirement. Pull-ups are useful for contact monitoring and assure that there are no erroneous outputs at power-up until the card is initialized by system software.
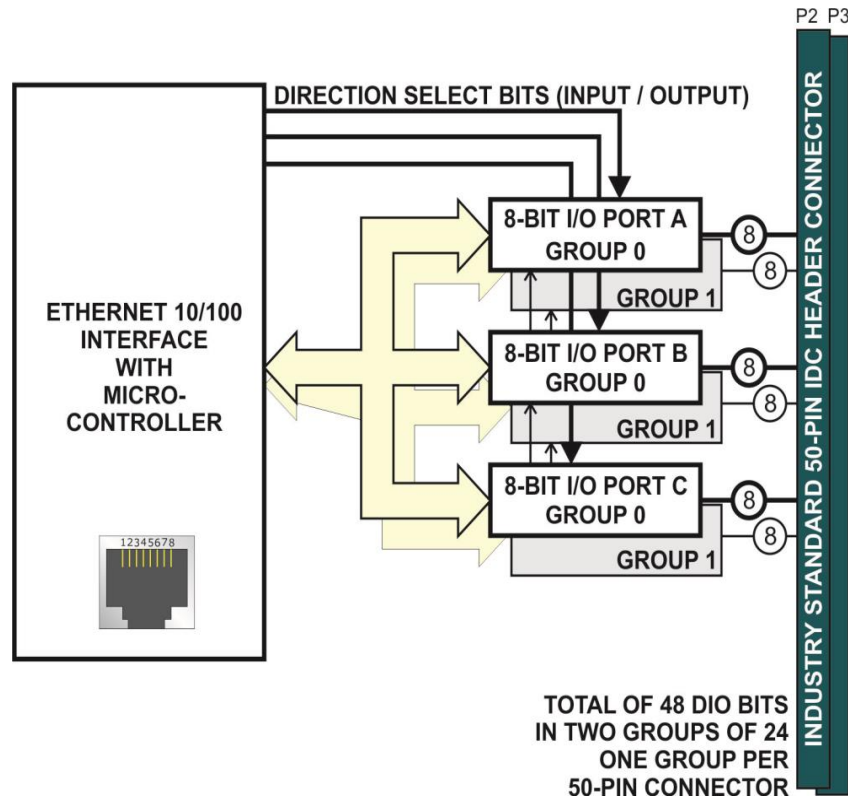
OEM ETH/104 FORM FACTOR

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 pre-drilled mounting holes match the PC/104 form factor (without the bus connections). This ensures easy installation using standard standoffs inside most enclosures or systems. The board can be added to any PC/104, PCI-104, or PCI/104-Express stack by connecting it to an available 10/100 base T port typically plenteous on embedded CPU form factors such as EBX, EPIC, and PC/104. The ETH-DIO-48 and ETH-DIO-24 OEM board can also be installed using standoffs inside other enclosures or systems.

ACCESSORIES

Available accessories include flat ribbon cables and DIN-rail mountable screw terminal boards. Also available is our low cost IIB-24 which will add optical isolation to any standard 24-channel digital I/O port on a 50 pin connector.

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 a free Linux and Windows software package with sample programs and source code in C#, Delphi, Visual Basic, and Visual C++ 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 interface usable from the most popular application programs. Embedded OS support includes Windows Embedded Standard.

P2 P3

DIRECTION SELECT BITS (INPUT / OUTPUT)

ETHERNET 10/100
INTERFACE
WITH
MICRO-
CONTROLLER

12345678

8-BIT I/O PORT A
GROUP 0
8
8
GROUP 1

8-BIT I/O PORT B
GROUP 0
8
8
GROUP 1

8-BIT I/O PORT C
GROUP 0
8
8
GROUP 1

INDUSTRY STANDARD 50-PIN IDC HEADER CONNECTOR

TOTAL OF 48 DIO BITS
IN TWO GROUPS OF 24
ONE GROUP PER
50-PIN CONNECTOR

BLOCK DIAGRAM

SPECIFICATIONS

Digital I/O (TTL Compatible)
Channels / Groups: 48 or 24 in 8-bit groups
Inputs:
    Logic High: 2.0 VDC minimum, 5.5 VDC max.
    Logic Low: -0.5 VDC minimum, 0.8 VDC max.
    Bias Resistors: 10K Ω
Outputs:
    Logic High: 2.0 VDC minimum, source 32 mA
    Logic Low: 0.55 VDC maximum, sink 64 mA
    Sample rate: Up to 2500 round-trip DI/O Read/Write
    transactions per second
    Note: performance is critically affected by network traffic

Bus Type
Ethernet 10/100 Base T, Auto-detecting
1.5kV isolation

Environmental
Operating Temp.:   0˚C to 70˚C (Extended Temp -40˚C to +80˚C)
Storage Temp.:   -40˚C to +85˚C
Humidity: 5%-90% RH, non-condensing

Mechanical
Board Dimension: 3.550 x 3.775 inches
Box Dimension: 4.00 x 4.00 x 1.7 inches
Connectors: I/O: Dual row 0.1" 50 pin shrouded headers
with grounds on all even pins
DC power jack: 2.0mm positive center post
Screw terminals available via enclosure cutout

Power
Basic 48 bit unit: +5VDC from external regulated power supply,
<300mA typical (no load), 2.0A max (full load)
Auxiliary Outputs: +5VDC via one 0.5A resettable fuse for both
connectors

ORDERING GUIDE

ETH-DIO-48   48 digital input/outputs in rugged enclosure w/DC
jack & external power adaptor
ETH-DIO-24   24 digital input/outputs in rugged enclosure w/DC
jack & external power adaptor

Model Options
-LV   LVTTL I/O for 3.3V systems
-OEM   Board only version with no enclosure or ext. power
supply
- T   Extended operating temperature -40˚C to +80˚C
-RoHS   Available in a RoHS compliant version

Optional Accessories
STB-DIO-48-ETH   Plug-in spring-cage terminal board for 48 Digital I/O
lines (used inside enclosure for ETH-DIO-48)
STB-50   Screw terminal board*
STB-48CH   50-pin multi-header universal screw terminal board
with steel powder coated enclosure for up to 48
digital I/O channels*
IIB-24   24-channel optical isolator board*
ROB-24   24-channel electromechanical relay board*
CAB50F-6   6' flat ribbon cable with female 50-pin connectors
1781-A24A   Solid state module mounting rack
CAB50-6   6' flat ribbon cable female to edge connector
MP104-DIN   DIN rail mounting provision

=requires one or more ribbon cables

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Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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