Industry Pack Modules

Acromag®
THE LEADER IN INDUSTRIAL I/O

RoHS Compliant

IP470A
TTL Level
Digital I/O

IP470A Industrial I/O Pack (IP) modules provide 48 general-purpose, bidirectional I/O points to economically monitor and control a large quantity of digital devices.

Each channel has interrupt capability for detecting low-to-high or high-to-low transitions. Change-of-state interrupts are supported using paired channels. Debounce eliminates interrupts from noise and switching transients for error-free edge detection.
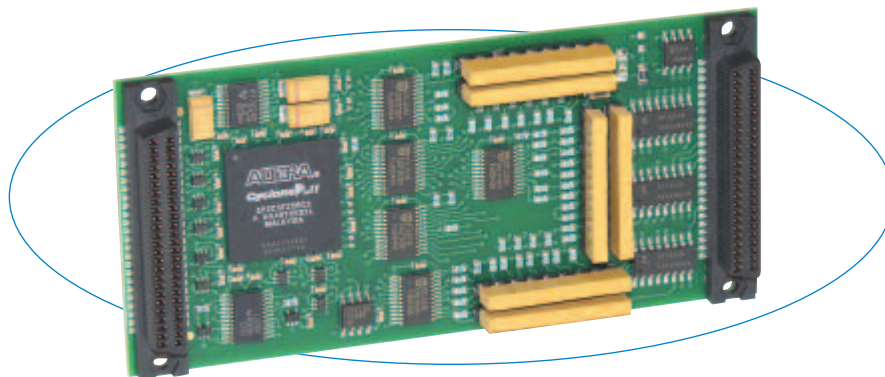
IP470A outputs are full-featured. They have socketed pull-ups and provide closed-loop readback status monitoring. TTL level thresholds and 15mA sink capability allow a direct interface to standard relay racks. And for safety, outputs go to a failsafe state upon power-up/reset without any instantaneous toggling to prevent false alarms.

With four IP470A modules on a 6U VMEbus carrier card, you can monitor and control 192 devices from a single card slot.

Features

- 48 bidirectional input/output channels
- TTL-compatible inputs
- CMOS-compatible open-drain outputs
- Interrupt support for each channel
- Input debounce
- Electronic overvoltage protection on individual channels
- Open drain outputs with socketed pull-ups
- Output readback registers

Benefits

- Output readback capability eliminates the need for additional input channels to verify the output channel state.
- Pinouts are compatible with industry-standard isolated I/O racks.
- Output channels do not "glitch" after a power-up/reset to eliminate false alarms.

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Specifications

Digital Inputs
Input channel configuration: 48 buffered inputs.

Input voltage range: 0 to 5V DC.

Input signal threshold: 1.5V typical.

Input response time: 135nS.

Digital Outputs
Output channel configuration: 48 open-drain CMOS outputs.

Output voltage range: 0 to 5V DC.

Output "ON" current range: 0 to 15mA DC.

Output pull-ups: 4.7K ohms pull-ups installed in board sockets. With pull-ups removed, integrated 47.5K ohms nominal pull-ups are present.

Turn on time: 125nS, typical.

Turn off time: 3μS, typical.

IP Compliance (ANSI/VITA 4)
Meets IP specifications per ANSI/VITA 4-1995.

IP data transfer cycle types supported:
Input/output (IOSel*), ID read (IDSel*), Interrupt select (INTSel*).

Access times (8MHz clock): 0 wait states (250ns cycle).

Updates: Requires six 8-bit read/writes to update all 48 channels.

Environmental
Operating temperature: 0 to 70°C (IP470)
or -40 to 85°C (IP470E model).

Storage temperature: -55 to 150°C (all models).

Relative humidity: 5 to 95% non-condensing.

MTBF: Contact the factory.

Power:
+5V (±5%): 160mA maximum.
±12V (±5%) from P1: 0mA maximum (not used).

Ordering Information

Industry Pack Modules
IP470A
48-channel digital I/O module.

IP470AE
Same as IP470A plus extended temperature range.

Acromag offers a wide selection of Industry Pack Carrier Cards.

Software *(see software documentation for details)*
IPSW-API-VXW
Deluxe Library (I/O function routines for VxWorks® 6.x 32-bit, x86, PowerPC, and other RTOS environments), CD-ROM

IPSW-API-WIN
64-bit and 32-bit Windows® DLL driver and demonstration software for Industry Pack Modules, PCI, and cPCI carriers.

IPSW-API-LNX
Linux example libraries for Industry Pack modules and PCI/CompactPCI carrier cards.

See accessories documentation for additional information.