Description

Models
AP441-1E-LF: ±4 to ±18V DC or AC peak input
AP441-2E-LF: ±16 to ±40V or AC peak input
AP441-3E-LF: ±38 to ±60V or AC peak input

The AcroPack® product line updates our popular Industry Pack I/O modules with a PCIe interface format. This tech-refresh design offers a compact size, low-cost I/O, the same functionality of the existing IP modules and a rugged form factor.

AP441-XE-LF modules provide 32 optically isolated inputs to safely monitor a wide range of digital input voltage levels.

Isolation protects your computer system from noise, transient signals, and field wiring faults. The inputs are grouped into four 8-channel ports. Ports are isolated from the logic and each other.

Change-of-state, high-to-low and low-to-high interrupts are individually programmable for each channel. Debounce eliminates spurious interrupts from noise and switching transients for error-free edge detection.

Closed-loop monitoring of critical control signals is easily accomplished using the AP441-XE-LF in conjunction with Acromag's AP445E-LF digital output module.

The AP441 module is 70mm long, this is 19.05mm longer than the full length mini PCIe card at 50.95mm. The board’s width is the same as mPCIe board of 30mm and they use the same mPCIe standard board hold down standoff and screw keep out areas.

A down facing 100 pin Samtec connector will mate with the carrier card. Fifty of these signals are available as field I/O signals.

Pin spacing and signal assignments will allow for 100V of port to port isolation. Logic and field lines are isolated from each other for voltages up to 250V AC or DC on a continuous basis.

The AP441 series maintains the same functionality of the existing Industry Pack modules providing a smooth transition to the AcroPack I/O modules.

AcroPack modules are RoHS compliant and ideal for military, defense, automation, aerospace, scientific, and development labs industries.

Key Features & Benefits

- PCI Express Generation 1 interface
- 2.5 Gbps bus speed with one lane in each direction
- 32 port-isolated input channels
- Interrupt support for each channel
- Programmable event interrupts (change-of-state, low-to-high or high-to-low transitions)
- Programmable debounce
- Input hysteresis
- Reverse polarity protection
- Software configuration (no jumpers or switches)
- Software configuration allows “on-the-fly” changes without removing modules.
- Pins are compatible with AP445E-LF output module for loopback monitoring
- Loopback monitoring enables self-test and fault diagnostics to detect open switches or shorts.
- Extended temperature range
Performance Specifications

- **Digital Inputs**
  - Input channel configuration: 32 optically isolated inputs
  - Isolation: Logic and field connections are optically isolated. Individual ports are also isolated from each other. Input lines of individual ports share a common connection and are not isolated from each other. Logic and field lines are isolated from each other for voltages up to 250V AC rms and 250V DC on a continuous basis (unit will withstand a 1250V AC dielectric strength test for one minute without breakdown).

  - Bipolar input voltage range:
    - AP441-1E-LF: ±4 to ±18V DC or AC peak
    - AP441-2E-LF: ±16 to ±40V DC or AC peak
    - AP441-3E-LF: ±38 to ±60V DC or AC peak

  - Input low-to-high threshold:
    - AP441-1E-LF: ±4V maximum
    - AP441-2E-LF: ±16V maximum
    - AP441-3E-LF: ±38V maximum

  - Input response time:
    - On to off: 15μS typical
    - Off to on: 35μS typical

  - Interrupts: 32 channels configurable as below
    - High-to-low transitions
    - Low-to-high transitions
    - Change-of-state

  - Debounce: Selectable for 4μS, 64μS, 1mS, or 8mS

- **Environmental**
  - Operating temperature: -40 to 70°C.
  - -40 to 85°C. (requires an AcroPack heatsink conduction-cool kit)
  - Storage temperature: -55 to 150°C
  - Relative humidity: 5 to 95% non-condensing
  - MTBF: Contact the factory

- **Physical**
  - Length: 70mm
  - Width: 30mm

Ordering Information

- **AcroPack® Modules**
  - AP441-1E-LF: Digital input, ±4 to ±18V
  - AP441-2E-LF: Digital input, ±16 to ±40V input range
  - AP441-3E-LF: Digital input, ±38 to ±60V input range

- **Accessories**
  - AP-CC-01: Conduction-cool kit

- **Carrier Cards**
  - AcroPack Carriers: CompactPCI® Serial, XMC, PCI Express or VPX bus carrier cards for AcroPack modules.

- **Software**
  - APSW-API-XXW: VxWorks® software support package.
  - APSW-API-WIN: Windows® DLL driver software support package.
  - APSW-API-LNX: Linux® support (website download only).

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AP-C0-01 Conduction-Cool Kit