**Description**

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 and memory map of the existing Industry Pack modules and a rugged form factor.

The AP408 monitors or controls the on/off (high/low) status of up to 32 devices. Each channel can be used as an input or output.

All 32 input channels can be configured with interrupts for a change of state or level detection of any bit. The TTL input threshold includes hysteresis for increasing noise immunity.

In order to ensure safe, reliable control under all conditions, output operation is “fail-safe.” That is, the outputs are always off upon power-up and are automatically cleared following a software reset.

Loopback monitoring of critical control signals is easy since the input and output circuitry are connected in tandem to each channel.

**Key Features & Benefits**

- PCI Express Generation 1 interface
- 32 digital input/output channels
- 0 to 60V DC input range, 60V DC low-side switch outputs
- Outputs sink up to 1A per channel
- TTL-compatible input threshold with hysteresis
- Change-of-state/level interrupts (up to 32)
- Buffered inputs include hysteresis to increase noise immunity.
- Interrupts are software-programmable for a change of state or level detection.
- Loopback monitoring enables self-test and fault diagnostics to detect open output switches or shorts.
- High impedance inputs prevent loading of the input source and minimize current.
- Individual outputs sink up to 1A DC continuous. No deration of output current required at elevated temperatures.
Performance Specifications

■ Digital Inputs
Input channel configuration
32 noninverting buffered inputs with a common connection
Input signal voltage range
0 to 60V DC, maximum
Input signal threshold
TTL compatible. Limited to TTL levels of 0.8V DC (max. low level) and 2.0V DC (minimum high level)
Interrupts
Change-of-state and level on channels 0-31

■ Digital Outputs
Channel configuration
32 open-drain MOSFETs with common source connection
Output ON current range
0 to 1A DC, continuous per channel (5A total for all channels combined). No deration required at elevated ambients
Output Rds ON Resistance
0.1 Ω maximum

■ PCI Express Base Specification
Conforms to revision 2.1
Lanes
1 lane in each direction
Bus Speed
2.5 Gbps (Generation 1)
Memory
4k space required
1 base address register

■ Environmental
Operating temperature
-40 to 70°C.
-40 to 85°C.
(requires an AcroPack heatsink conduction-cool kit)
Storage temperature
-40 to 125°C
Relative humidity
5 to 95% non-condensing
Power
+3.3V (±5%) — 400mA typical 600mA maximum
+5V (±5%) — 20mA typical 50mA maximum

■ Physical
Length
70mm
Width
30mm

Ordering Information

AcroPack® Modules

AP408E-LF
32 bidirectional input/output channels
(Note: AcroPack modules are compatible only with the carriers listed below)

Accessories
AP-CC-01
Conduction-cool kit

Carrier Cards
APCe7010E-LF
PCIe AcroPack carrier, holds one AcroPack module, air-cooled.
APCe7022E-LF
PCIe AcroPack carrier, holds two AcroPack modules, air-cooled.
APCe7040E-LF
PCIe AcroPack carrier, holds four AcroPack modules, air-cooled.
VPX4500E-LF
3U VPX AcroPack carrier, holds three AcroPack modules, air-cooled.
VPX4500-CC-LF
3U VPX AcroPack carrier, holds three AcroPack modules, conduction-cooled.
XMCAP2020-LF
XMC AcroPack carrier; holds two AcroPack modules, 2-slots out front, air-cooled.
XMCAP2021-LF
XMC AcroPack carrier; holds two AcroPack modules, 2-slots out rear, air-cooled.

Software (see software documentation for details)
APSW-API-VXW
VxWorks® software support package.
APSW-API-WIN
Windows® DLL driver software support package.
APSW-API-LNX
Linux® support (website download only).