Industry Pack Modules

IP330A
16-Bit A/D
Analog Input

IP330A Industry Pack (IP) modules provide fast, high-resolution A/D conversion.

The IP330A has many features to improve your overall system throughput rate. You can scan all channels or define a subset for more frequent sampling. Burst mode scans selected channels at the maximum conversion rate. Uniform mode performs conversions at user-defined intervals. Both modes can scan continuously, or execute a single cycle upon receiving a trigger.

“Mail box” memory allows the CPU to read the latest data in 32 storage buffer registers without interrupting the A/D converter.

Features

- 16-bit A/D converter (ADC)
- 5µS conversion time (200KHz)
- 16 differential or 32 single-ended inputs (±5V, ±10V, 0-5V, and 0-10V input ranges)
- Individual channel mailbox with one or two storage buffer registers per channel
- Programmable scan control
- Four scanning modes
- User-programmable interval timer
- External trigger input and output
- Programmable gain for individual channels
- Post-conversion interrupts

Benefits

- “Mailbox” memory eliminates scanning interruptions for optimum throughput.
- Data register indicates new and missed (overwritten) data values in the mail box.
- Programmable interrupts simplify data acquisition by providing greater control.

Specifications

Analog Inputs

- Input configuration: 16 differential or 32 single-ended
- A/D resolution: 16 bits.
- Input ranges: ±5V, ±10V*, 0-5V, and 0-10V*.
  * Requires ±15V external supplies.
- Data sample memory: Individual channel mailbox with one or two storage buffer registers per channel.
- Maximum throughput rate:
  - Only one channel can be updated at a time.
  - One channel: 200KHz maximum (5µS/conversion) [66KHz (15µS/conversion) recommended]
  - 16 channels (differential): 4.2KHz (240µS/16 ch)
  - 32 channels (single-ended): 2.1KHz (480µS/32 ch).
- Programmable gains: 1x, 2x, 4x, 8x.
- A/D triggers: External and software.
- System accuracy: 2 LSB (0.0030%) typical (SW calib., gain=1, 25°C).
- Data format: Straight binary or two's compliment.
- Input overvoltage protection: Vss -20V to Vdd 40V with power on, -35V to 55V power off.
- Common mode rejection ratio (60Hz): 96dB typical.
- Channel-to-channel rejection ratio (60Hz): 96dB typical.

IP Compliance (ANSI/VITA 4)

- Meets IP specifications per ANSI/VITA 4-1995.
- IP data transfer cycle types supported: Input/output (I0S*), ID read (IDSel*), Interrupt select (INTSel*).
- Access times (8MHz clock):
  - ID PROM read: 1 wait state (375ns cycle).
  - I/O space read/write: 1 wait states.
  - Interrupt select cycle read: 1 wait state.
  - Mail box I/O read: 1 wait state. 3 wait states if ongoing internal mail box write.

Environmental

- Operating temperature: 0 to 70°C (IP330A) or -40 to 85°C (IP330AE model).
- Storage temperature: -55 to 100°C.
- Relative humidity: 5 to 95% non-condensing.
- MTBF: Consult factory.
- Power:
  - +5V: 65mA typical, 200mA maximum.
  - +12V: 14mA typical, 20mA maximum.
  - -12V/-15V: 11mA typical, 15mA maximum.

Ordering Information

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- IP330A: 32 single-ended or 16 differential inputs.
- IP330AE: Same as IP330A plus extended temperature range

Acromag offers a wide selection of Industry Pack Carrier Cards.

Software

- VxWorks® software support package
- QNX® software support package
- Windows® DLL driver software support package
- Linux™ support (website download only)

See accessories documentation for additional information.

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