

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.

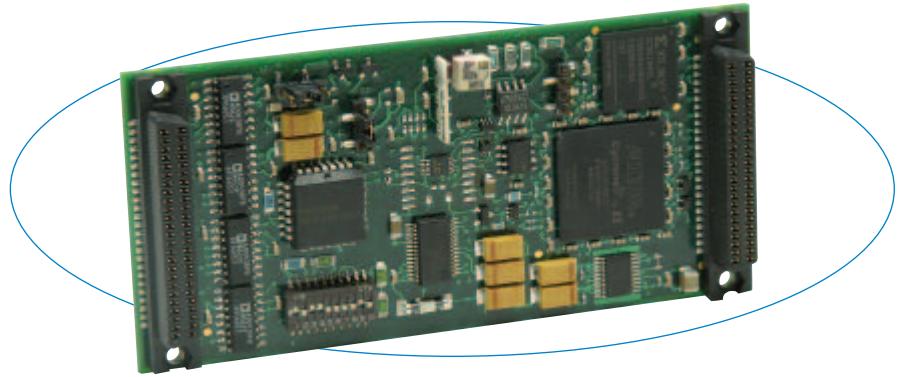
“Mail box” memory allows the CPU to read the latest data in 32 storage buffer registers without interrupting the A/D converter.

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.



Advanced memory management techniques allow the IP330A to operate with minimal interruption of the A/D converter.

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 complement.
 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 (IOSel*), 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

Industry Pack Modules

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 (see [software documentation](#) for details)

IPSW-API-VXW
VxWorks® software support package

IPSW-API-QNX
QNX® software support package

IPSW-API-WIN
Windows® DLL driver software support package

IPSW-LINUX
Linux™ support (website download only)

See [accessories documentation](#) for additional information.