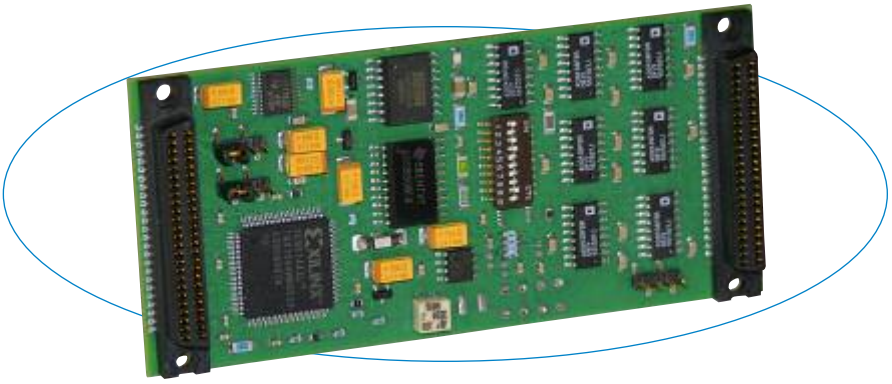
Acromag
THE LEADER IN INDUSTRIAL I/O

IP320A
12-Bit A/D, Analog Input



By installing multiple IP320As on one card, you can achieve extremely high channel density to reduce costs and preserve card slots

The IP320A monitors 20 differential or 40 single-ended input channels. When used with a carrier that holds four IP modules, up to 160 inputs can be obtained from a single card cage slot.

A jumper offers a choice of three input voltage ranges. Using the software programmable gain, you can easily customize the input voltage on an individual channel basis. The control register provides further flexibility with the option of single-ended or differential inputs and controlled channel selection. Software or external triggers enable synchronization of data acquisition to external events.

Features

- 20 differential or 40 single-ended inputs
- 12-bit, successive approximation A/D converter (ADC) with an 4.5µS conversion time
- 200K samples per second maximum system throughput rate
- Three dip switch-selectable input ranges: -5 to 5V, -10 to 10V, and 0 to 10V
- Programmable gains of 1, 2, 4, and 8
- Built-in calibration references

Benefits

- Software or external hardware inputs can trigger A/D conversions for synchronization to external events.
- On-board, precision voltage references enable accurate software calibration of the module without external instruments.
- The module supports both "wait" states (generated by the IP module) and "hold" states (generated by the carrier board).

Specifications

Analog Inputs

Input configuration: 40 single-ended or 20 differential.

A/D resolution: 12 bits.

Input ranges (dip switch-selectable):
Bipolar -5 to +5V, -10 to +10V (See Note 1), or
Unipolar 0 to +10V (See Note 1).

Note 1: Range requires ±15V external power supply. Clipping occurs with ±12V supplies, typically to ±9V.

Maximum throughput rate: 200KHz (5µS/conversion).
Only one channel updates at a time.

Programmable gains: x1, x2, x4, x8.

A/D triggers: External and software.

Maximum overall calibrated error at 25°C: See below.

Input Range (volts)	PGA Gain	ADC Range (volts)	Max.Error ±LSB (%span)
0 to 10	1	0 to 10	3.2 (0.078)
-5 to +5	1	-5 to +5	1.8 (0.044)
-10 to +10	1	-10 to +10	2.8 (0.069)

Data format (left-justified): Straight Binary.

Input overvoltage protection: ±32V powered,
-35 to +55 unpowered.

Common mode rejection ratio (60Hz): 71dB.

Channel-to-channel rejection ratio (60Hz): 71dB.

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*).

Access Times (8MHz clock):
All functions: 0 wait states (250nS cycle) except
Control register write: 1 wait state (375nS cycle),
Read ADC data: 2 wait states (500nS cycle).
Conversion Request (write): 1 wait state (375nS cycle)

Environmental

Operating temperature: 0 to 70°C (IP320A)
or -40 to 85°C (IP320AE model).

Storage temperature: -40 to 125°C (IP320A)
or -55 to 105°C (IP320AE model).

Relative humidity: 5 to 95% non-condensing

MTBF: 719,999 hrs at 25°C, MIL-HDBK-217F, Notice 2

Power: +5V: 210mA maximum.
+12V from P1 or +15V from P2: 25mA maximum.
-12V from P1 or -15V from P2: 25mA maximum.

Ordering Information

Industry Pack Modules

IP320A
40 single-ended or 20 differential inputs.

IP320AE
Same as IP320A 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.

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