

ANALOG INPUT BOARD

AIM778-PCI



L-3's Analog Input board (AIM778-PCI) is a convenient alternative to standalone instruments. It complements our Decom/Simulator boards in customizing your telemetry analog input system. Independently, it provides a powerful tool for diagnostics and data presentation.

The AIM778-PCI provides 64 channels of analog input (or 32 channels of differential analog input), allowing users to set their own sample rates.

Analog input data is collected in block mode, suitable for display, processing, and archiving. L-3 offers additional solutions for applications requiring higher performance analog input or processing. Please contact factory for details.

KEY FEATURES

- 64 single-ended or 32 differential input channels
- 1.25 MegaSamples/sec
- 12-bit resolution
- Software-selectable input ranges
- Channel-independent programmable gains
- Acquires and digitizes analog data for real-time applications
- Acquires FM telemetry data through traditional multiplex discriminators
- Tests and calibrates transducers prior to deployment
- Shielded I/O connector block and cable included



Excellence You Can Measure

AIM778-PCI SPECIFICATIONS

Connector Pin Assignments

Analog input is through a standard 100-pin female 0.050 Series D-type connector.

Analog Input

Input Characteristics

Number of channels64 single-ended or 32 differential, software-selectable
 Type of ADCSuccessive approximation
 Resolution12 bits, 1 in 4,096
 Maximum sampling rate1.25 MS/sec
 Input signal ranges:

Board Gain (Software-Selectable)	Board Range (Software-Selectable)	
	Bipolar	Unipolar
0.5	±10 V	-
1	±5 V	0 to 10 V
2	±2.5 V	1 to 5 V
5	±1 V	0 to 2 V
10	±500 mV	0 to 1 V
20	±250 mV	0 to 500 mV
50	±100 mV	0 to 200 mV
100	±50 mV	0 to 100 mV

Input couplingDC
 Max. working voltageEach input should remain within +11 V of ground (signal + common mode)
 Overvoltage protection±25 V powered on, ±15 V powered off
 Inputs protectedACH<0..63>, AISENSE
 FIFO buffer size512 samples
 Data transfersDMA, interrupts, programmed I/O
 DMA modesScatter-gather
 Configuration memory size512 words
Transfer Characteristics
 Relative accuracy±0.5 LSB typical dithered, ±1.5 LSB maximum undithered
 DNL±0.5 LSB typical, ±1.0 LSB maximum
 No missing codes12 bits, guaranteed
Offset error:
 Pregain error after calibration±12 µV maximum
 Pregain error before calibration±2.5 mV maximum
 Postgain error after calibration±0.5 mV maximum
 Postgain error before calibration±100 mV maximum
Gain error (relative to calibration reference):
 After calibration (gain = 1)±0.02% of reading maximum
 Before calibration±2.5% of reading maximum
 Gain ¹ 1 with gain error
 adjusted to 0 at gain = 1±0.02% of reading maximum

Amplifier Characteristics

Input impedance:
 Normal powered on100 GΩ in parallel with 50 pF
 Powered off820 Ωminimum
 Overload820 Ωminimum
 Input bias current±200 pA
 Input offset current±100 pA
 CMRR (all input ranges)100 dB @ gain = 1
Dynamic Characteristics
Bandwidth:
 Small signal (-3 dB)1 MHz
 Large signal (1% THD)1 MHz
 Settling time for full-scale set5 µs max. to ±0.5 LSB accuracy
 System noise (not including quantization):

Gain	System Noise
0.5 to 10	0.25 LSB _{rms}
20	0.4 LSB _{rms}
50	0.5 LSB _{rms}
400	0.8 LSB _{rms}

Crosstalk-80 dB, DC to 100 kHz
Stability
 Recommended warm-up time15 minutes
 Offset temperature coefficient:
 Pregain±5 µV/°C
 Postgain±240 µV/°C
 Gain temp. coefficient±20 ppm/°C
 Onboard calibration ref. level5.000 V (±2.5 mV)
 (actual value stored in EEPROM)
 Temperature coefficient±5 ppm/°C maximum
 Long-term stability±15 ppm/1000 h

Power

+5 VDC (±5%)1.1 A
 Power available at
 I/O connector+4.65 VDC to +5.25 VDC @ 1 A

Physical Characteristics

Mechanical32-bit PCI-compatible card; requires one 32-bit PCI slot
 SizeHalf slot
 Operating temperature0° to 55° C
 Relative humidity< 90% (non-condensing)

Compatibility

VTS Software
 Windows 2000, XP

Ordering Information

AIM778-PCIPCI Analog Input Module (64 Analog Input Channels or 32 Differential Analog Inputs)

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