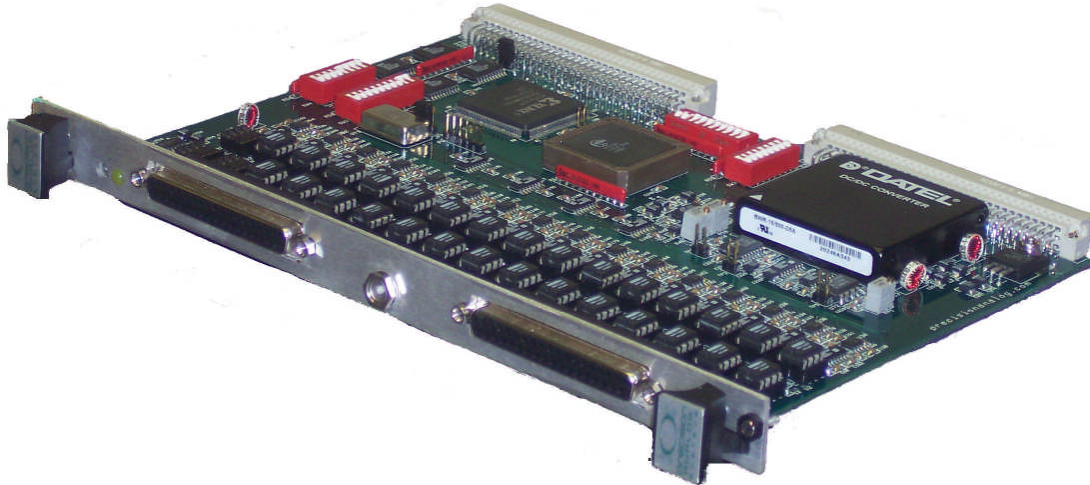


# PAS 9723/AI

## 32 Channel Simultaneous Sampling 12 Bit VME Analog Input Card



### GENERAL DESCRIPTION

The **PAS 9723/AI** provides thirty-two, simultaneous sampling, twelve bit, analog input channels on a 6U format VME card. VME systems with A16, A24, or A32 addressing are supported, and data reads of 16 bits are used to access the input channels. DIP switches are used to configure the width of the address bus.

This card includes thirty-two, individual, differential input, precision amplifiers. Each amplifier drives a corresponding sample and hold stage, which, upon receipt of a common trigger signal, "freezes" the output of the differential amplifier. Each amplifier has a standard gain of 1.000, but has provisions for the installation of a precision gain setting resistor to increase the front end gain by as much as 1,000:1.

The sample and hold stages are followed by a 32 channel scanning analog multiplexer, that drives the input of a 12 bit Analog to Digital Converter. Switch selectable full-scale ranges of 0 to +10.24V, 0 to +5.12V, +/- 10.24 V or +/- 5.12V are available. A 32 word by 16 bit data register file and VME interface are provided for storing the results of the A to D conversions and making them available to the VME bus.

The analog input signals are terminated on a pair of 37 position female D-sub connectors mounted through the front panel. The external trigger signal is provided with a Lemo type RA00 female coaxial connector.

When the card is not scanning and converting data, all of the track and hold amplifiers will be tracking the amplified analog input signals. Upon receipt of an external trigger signal, the card will hold the value of all the analog input signals, and initiate an acquisition scan. Using the sequential multiplexer, the A/D converter will acquire and digitize all 32 channels, and write the results of each conversion into the proper register location. During this scan sequence, VME register access is limited.

Two front panel LED's are provided to indicate the card's status. An amber Scan LED will flash whenever the module is triggered. A blue VME LED will light whenever the card is accessed from the VME bus.

Additional features include, a board identifier PROM, and a control and status register.



## Electrical Specifications

<b>Number of Channels</b>	32 Analog Inputs, 1 External Trigger Input
<b>Resolution</b>	12 bits
<b>Input Voltage Ranges</b>	+/- 10.24 Volts, +/- 5.12 Volts 0 to 10.24 Volts, 0 to 5.12 Volts
<b>Input Impedance</b>	1000 M ohms    6 pF (typ)
<b>Input Bias Current</b>	500 pAmps (typ)
<b>Over Voltage Protection</b>	+/- 40 Volts
<b>Max. Settling Time</b>	5 uSec (typ) to 0.01%
<b>ADC Integral Nonlinearity</b>	+/- 1 LSB (max.)
<b>ADC Differential Nonlinearity</b>	+/- 1 LSB (max.)
<b>Offset Error</b>	+/- 2 LSB
<b>Full Scale Error</b>	+/- 2 LSB
<b>External Trigger Rate</b>	6 KHz Max (Note 1)
<b>External Trigger Input</b>	TTL Level input with 1K Ohm pull-up to +5 V
<b>Card Power Requirements</b>	5 Volts @ 2 Amps, (typ)

## Features

**Input Type:** 32 simultaneous sampling analog voltage input channels

**Input Scanning:** 32 channel scanning analog multiplexer and 12 bit A/D Converter

**Instrumentation Amplifier:** One per channel with resistor programmable gain

**Input Voltage Ranges:** Selectable +/- 10.24 V, +/- 5.12 V, 0-10.24 V, or 0 to 5.12V

**Data Format:** Left justified, offset binary, four LSB's return zeros

**VME Interface:** A32, A24, A16; D16 Slave

**Status LEDs:** Scan and board access LED's on the front panel

**Board Identifier PROM:** Board ID is VMEID PAS9723/AI A0

## Environmental Specifications

<b>Operating Temperature Range</b>	0 to 60 degrees C.
<b>Storage Temperature Range</b>	-20 to 85 degrees C.
<b>Relative Humidity Range</b>	20% to 80%, non-condensing

## Physical Specifications

<b>Dimensions</b>	Form factor: 6U (160 mm x 233 mm)
<b>Weight</b>	12 oz. (typ)
<b>Connectors</b>	2 ea. 96 position, (VME bus connectors) 2 ea. DB37 female, (Analog Input connectors) 1 ea. External trigger coax connector

Note 1: Multiplexing and conversion takes 5 uSec per channel, therefore scanning all 32 channels requires 160 uSec

