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**PAS 9402/AI  
ENGINEERING SPECIFICATION**

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**32 CHANNEL ATTENUATOR  
AND RMS CONVERTER  
Rev A (03/30/10)**

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# 32 Channel Attenuator and RMS Converter

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
I	<b>INTRODUCTION</b>	5
	General Description	5
	Card Features	6
II	<b>SPECIFICATIONS</b>	7
	Electrical Specifications	7
	Environmental Specifications	8
	Physical Specifications	8

# 32 Channel Attenuator and RMS Converter

## LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page</u>
1	P1 Connector Definitions	9
2	P2 Connection Definitions	10
3	P3 Connector Definitions	11

# I. INTRODUCTION

## GENERAL DESCRIPTION

The PAS 9402/AI provides thirty-two channels of voltage attenuation, with optional RMS to DC conversion on a nineteen-inch rack mountable panel. Input signals are connected to the attenuators through a pair of DB37 connectors. Each connector terminates sixteen signals. Unity gain, FET input operational amplifiers are used to buffer the attenuated signals, and provide a low impedance source that is used to drive the optional RMS to DC converters. The outputs of the RMS converters are routed to a 32 by 2 shrouded header that can be cabled directly to a PAS 9737/AI analog input card. On versions of the card that don't require the RMS conversion, the output of the attenuator can drive the analog input card directly.

Resistors used to attenuate the input signals are 0.1% metal film devices in order to provide high accuracy. A 5 Volt to  $\pm 15$  Volt DC to DC converter is provided on the versions that require the active components, and requires that 5 Volts DC be connected to the panel.

**Card Features: PAS 9402/AI**

- 32 Channels of signal attenuation with optional RMS to DC conversion
- Mounts on standard 19" cabinet rails and requires 1 ¾ " of vertical rack space
- High accuracy 0.1 % resistors used in input dividers
- Output signals available on a 32 x 2 position shrouded header that is compatible with the PAS 9737/AI analog input card
- Custom versions available

## II. SPECIFICATIONS

### Electrical Specifications

-000

Input Divider Ratio	5 to 1
Input Resistance	50K Ohm
Resistor Tolerance	0.1%
Resistor Values	40K Ohm and 10K Ohm
RMS to DC Converter	None
Input Voltage Range	+/- 48 VDC Nominal
Number of Channels	32

-001

Input Divider Ratio	30 to 1
Input Resistance	300K Ohm
Resistor Tolerance	0.1%
Resistor Values	290K Ohm and 10K Ohm
RMS to DC Converter	AD536AJQ
Input Voltage Range	0 to 180 VAC Nominal
Number of Channels	32

-002

Input Divider Ratio	2.33 to 1
Input Resistance	233K Ohm
Resistor Tolerance	1%
Resistor Values	133K Ohm and 100K Ohm
RMS to DC Converter	AD536AJQ
Input Voltage Range	0 to 16 VAC Nominal
Number of Channels	16

-003

Input Divider Ratio	4 to 1
Input Resistance	40K Ohm
Resistor Tolerance	0.1%
Resistor Values	30K Ohm and 10K Ohm
RMS to DC Converter	None
Input Voltage Range	+/- 32 VDC Nominal
Number of Channels	32

-004	
Input Divider Ratio	7 to 1
Input Resistance	70K Ohm
Resistor Tolerance	0.1%
Resistor Values	60K Ohm and 10K Ohm
RMS to DC Converter	AD536AJQ
Input Voltage Range	0 to 50 VAC Nominal
Number of Channels	16

Input Divider Ratio	3 to 1
Input Resistance	3K Ohm
Resistor Tolerance	1%
Resistor Values	2K Ohm and 1K Ohm
RMS to DC Converter	None
Input Voltage Range	+/- 12 VDC
Number of Channels	16

Total Channels on -004	32
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### Environmental Specifications

Operating Temperature Range	0 to 55° C
Storage Temperature Range	-20 to 85° C
Relative Humidity Range	20 % to 80 %, non-condensing

### Physical Specifications

Length	19.0"
Height	1.75"
Depth	4.00"
Weight	2 lbs
Connectors	
Input	2 Ea, DB37 Female
Output	1 Ea, 32 x 2 Shrouded Header Male



**TABLE 1**  
**P1 Connector Definitions**

AGND	20	1	+ 15 V PS
AGND	21	2	- 15 V PS
AGND	22	3	CH 15 IN
AGND	23	4	CH 14 IN
AGND	24	5	CH 13 IN
AGND	25	6	CH 12 IN
AGND	26	7	CH 11 IN
AGND	27	8	CH 10 IN
AGND	28	9	CH 9 IN
AGND	29	10	CH 8 IN
AGND	30	11	CH 7 IN
AGND	31	12	CH 6 IN
AGND	32	13	CH 5 IN
AGND	33	14	CH 4 IN
AGND	34	15	CH 3 IN
AGND	35	16	CH 2 IN
AGND	36	17	CH 1 IN
AGND	37	18	CH 0 IN
		19	+ 5 V

**TABLE 2**  
**P2 Connector Definitions**

AGND	20	1	+ 15 V PS
AGND	21	2	- 15 V PS
AGND	22	3	CH 31 IN
AGND	23	4	CH 30 IN
AGND	24	5	CH 29 IN
AGND	25	6	CH 28 IN
AGND	26	7	CH 27 IN
AGND	27	8	CH 26 IN
AGND	28	9	CH 25 IN
AGND	29	10	CH 24 IN
AGND	30	11	CH 23 IN
AGND	31	12	CH 22 IN
AGND	32	13	CH 21 IN
AGND	33	14	CH 20 IN
AGND	34	15	CH 19 IN
AGND	35	16	CH 18 IN
AGND	36	17	CH 17 IN
AGND	37	18	CH 16 IN
		19	+ 5 V

**TABLE 3**  
**P3 Connector Definitions**

AGND	63	64	CH 31 OUT
AGND	61	62	CH 30 OUT
AGND	59	60	CH 29 OUT
AGND	57	58	CH 28 OUT
AGND	55	56	CH 27 OUT
AGND	53	54	CH 26 OUT
AGND	51	52	CH 25 OUT
AGND	49	50	CH 24 OUT
AGND	47	48	CH 23 OUT
AGND	45	46	CH 22 OUT
AGND	43	44	CH 21 OUT
AGND	41	42	CH 20 OUT
AGND	39	40	CH 19 OUT
AGND	37	38	CH 18 OUT
AGND	35	36	CH 17 OUT
AGND	33	34	CH 16 OUT
AGND	31	32	CH 15 OUT
AGND	29	30	CH 14 OUT
AGND	27	28	CH 13 OUT
AGND	25	26	CH 12 OUT
AGND	23	24	CH 11 OUT
AGND	21	22	CH 10 OUT
AGND	19	20	CH 9 OUT
AGND	17	18	CH 8 OUT
AGND	15	16	CH 7 OUT
AGND	13	14	CH 6 OUT
AGND	11	12	CH 5 OUT
AGND	9	10	CH 4 OUT
AGND	7	8	CH 3 OUT
AGND	5	6	CH 2 OUT
AGND	3	4	CH 1 OUT
AGND	1	2	CH 0 OUT