Analog input module

AI

- 16-bit analog converters
- Optically and electrically isolated
 - Each channel has an electrically isolated analog ground
 - Each channel is individually optically isolated
- Each channel has individually configurable digital filtering

Inputs per module	2 (differential ended)	Bus power required (5 VDC)	0.2 mA
Input type	Voltage, ±20 mVDC	Isolation rating	500 VDC
Connector	Removable	Operating temperature	
Connection type	Screw terminal	Horizontal installation ¹	0 - 50°C
Terminal wire size	14 – 22 AWG	Vertical installation ¹	0 - 45°C
Test point	All connections	Storage temperature	-25 – 85°C
Module size	1 controller bay	Humidity	5 – 95% non-condensing
		5100 equivalent part number	V

General specifications

1. Refer to the applicable controller datasheet for proper mounting instructions.

Performance specifications

Parameter	Value	
Input range	-20 mV to 20 mV	
Input resolution	16-bit	
Input resistance		
+Ain to -Ain	$10^{12} \Omega$	
+Ain to ACOM	$10^{12} \Omega$	
-Ain to ACOM	1.5 MΩ	
Max input voltage	±32 VDC	

Parameter	Value	
Full range calibration error ^{1,2}	0.013% of range	
Offset calibration error at 0 $V^{1,2}$	0.013% of range	
Linearity error (full range) ^{1, 2}	0.037% of range	
Digital input filter size (settable)	1-255 samples	
Digital input filter rate	5 msec	
Output slew rate (max)	10 V/μsec	
Controller engineering units (channel configurable)	20 mVDC = 10,000 or 20 mVDC = 20,000 or 20 mVDC = 10,000,000	

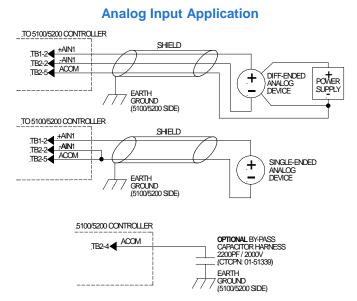
1. Errors are at 25°C.

2. Errors are double across full ambient temperature range of 0 – 50° C.

Module Overview

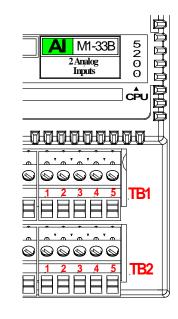
Analog input module	AI	M1-33B

Typical Application



	5100	5200
Minimum hardware revision	E	E
Minimum firmware revision	1.07	1.07
Minimum operating system revision	4.04.12	5.06
Document number: 950-513306-0001		

Connections



I/O Terminations	
TB1-1	VS_OUT
TB1-2	+Ain #1
TB1-3	+Ain #2
TB1-4	N/C
TB1-5	N/C
TB2-1	VS_RTN
TB2-2	-Ain #1
TB2-3	-Ain #2
TB2-4	ACOM
TB2-5	ACOM

Notes

- 1. Shield grounds must be terminated on the controller side of the cable.
- 2. When an analog device is powered via an external power source, it may be necessary to tie the ground of this power source to the module's analog common (ACOM) to limit common mode voltages.
- 3. For register and programming information, refer to the appropriate controller Applications Guide.
- 4. The information and illustrations contained herein are the property of Control Technology Corporation and are subject to change without notice. Data based on VS = 24VDC @ 25°C unless otherwise noted. For additional information and/or updates visit www.ctc-control.com.
- 5. VS refers to the voltage supply of the controller.