

## Analog input module

AI M3-33A

AI M3-33B

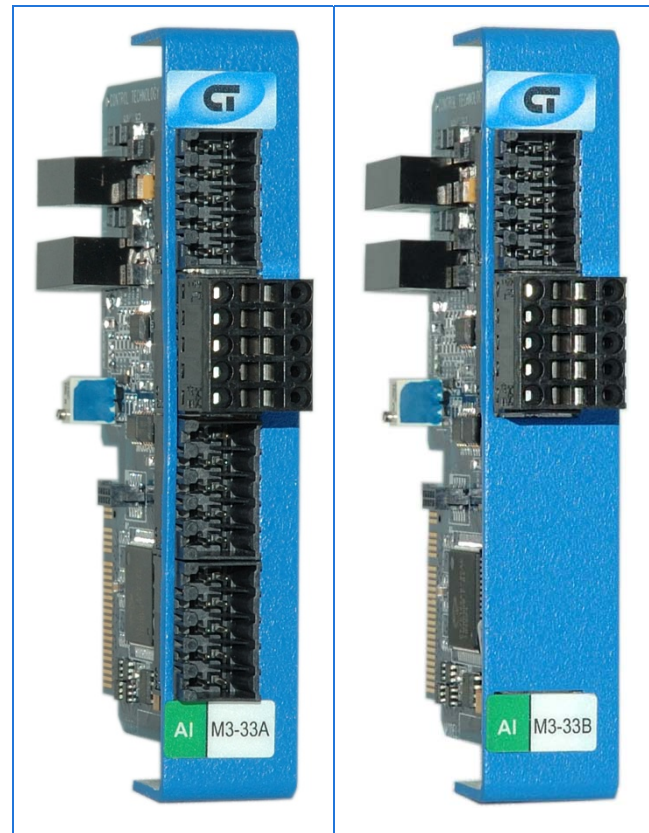
*M3-33A: 8 differential analog inputs ( $\pm 20$  mVDC)*

*M3-33B: 4 differential analog inputs ( $\pm 20$  mVDC)*

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

### General specifications

Inputs per module:	
M3-33A	8
M3-33B	4
Input type	Voltage, $\pm 20$ mVDC
Connection	Removable terminal block
Connection type	Tension clamp
Terminal block part number	069-621010
Terminal wire size (UL 1059)	18 - 22 AWG
Test point	All connections
Module size	1 rack slot (0.75"/19 mm)
Bus power required (5 VDC)	0.2 mA
Isolation rating	500 VDC
Operating temperature	
Horizontal installation	0 - 50°C
Vertical installation	0 - 45°C
Storage temperature	-25 - 85°C
Humidity	5 - 95% non-condensing



Actual size

Minimum hardware revision	0, A
Minimum firmware revision	1.02
Minimum operating system revision	5.00.90
Documentation number: 950-533301-002	

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## 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 M $\Omega$
Max input voltage	$\pm 32$ VDC
Full range calibration error <sup>1,2</sup>	0.013% of range
Offset calibration error at 0 V <sup>1,2</sup>	0.013% of range
Linearity error (full range) <sup>1,2</sup>	0.037% of range
Digital input filter size (settable)	1 – 255 samples
Update rate (all channels):	
M3-33A	625 Hz
M3-33B	1250 Hz

1. Errors are at 25°C.
2. Errors are double across full ambient temperature range of 0 – 50°C.

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M3-33A

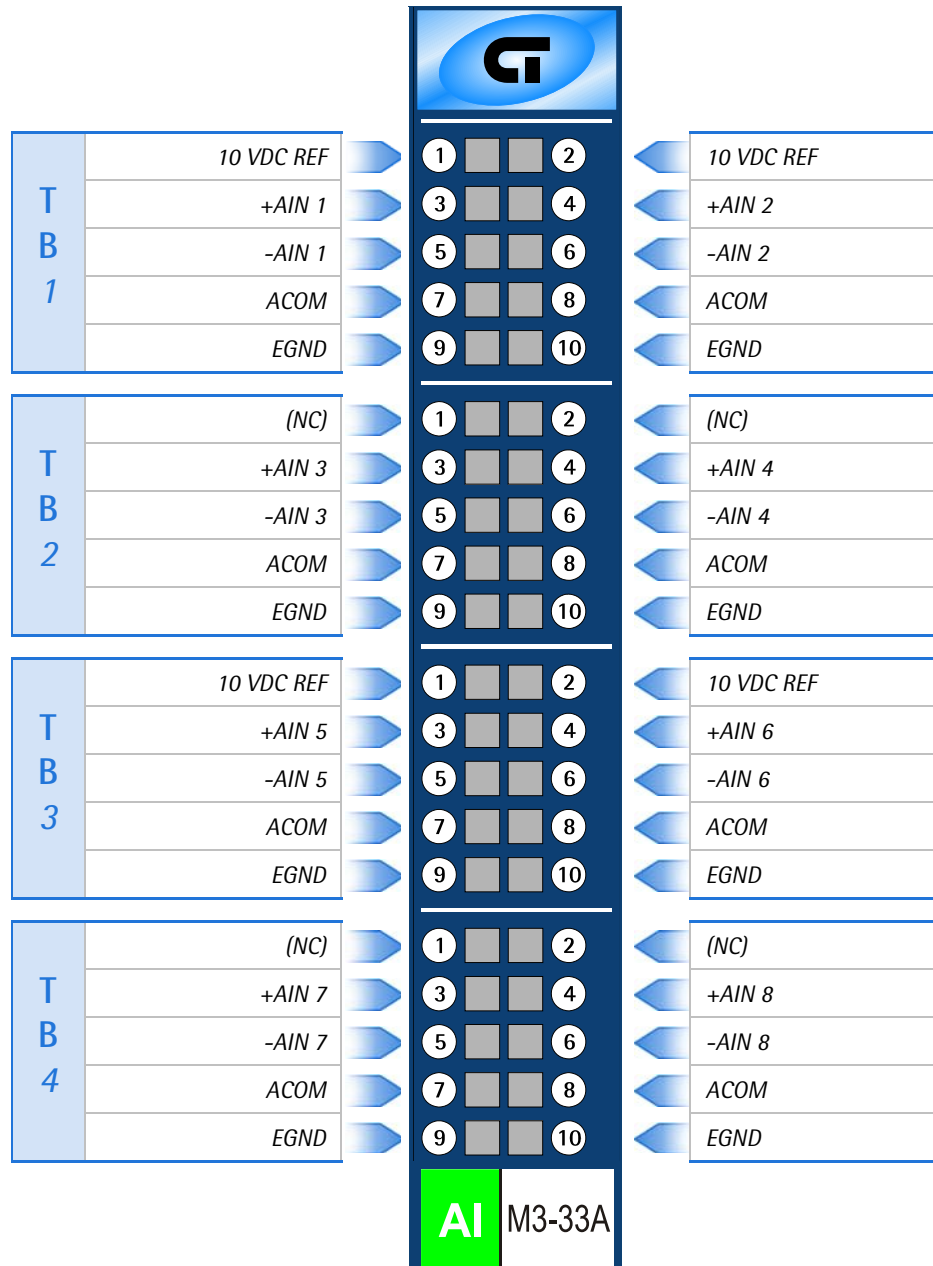
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M3-33B

M3-33A: 8 differential analog inputs ( $\pm 20$  mVDC)

M3-33B: 4 differential analog inputs ( $\pm 20$  mVDC)

### Terminal block connections



#### Notes

1. TB3 and TB4 not available on M3-33B.
2. Max total current for all 10 VDC REF connections is 25 mA per module.

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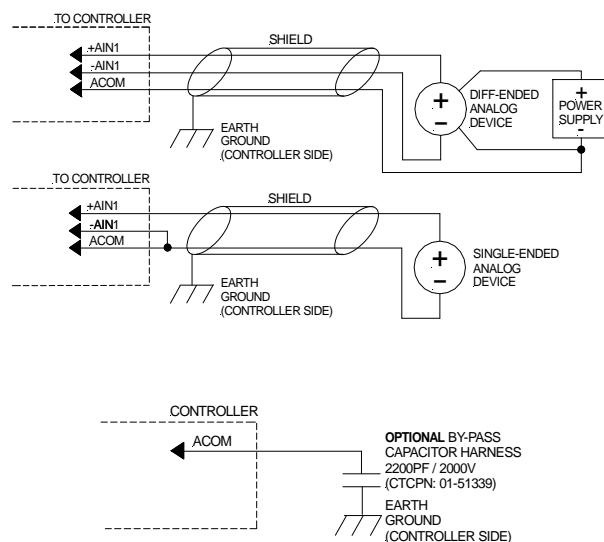
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M3-33A

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M3-33B

### Application Information



### 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. Insertion and/or removal of I/O modules should be done with all power removed. Failure to do so may lead to damaged electronics and/or incorrect I/O states.
4. Incorrect I/O connections may lead to damaged electronics and/or incorrect I/O states.
5. For register and programming information, refer to the appropriate controller Applications Guide.
6. The information and illustrations contained herein are the property of Control Technology Corporation and are subject to change without notice. Data based on VS = 24 VDC @ 25°C unless otherwise noted. For additional information and/or updates, visit [www.ctc-control.com](http://www.ctc-control.com). Copyright © 2007–2013 Control Technology Corporation. All Rights Reserved.