

## Analog output module

AO

M3-32A

AO

M3-32B

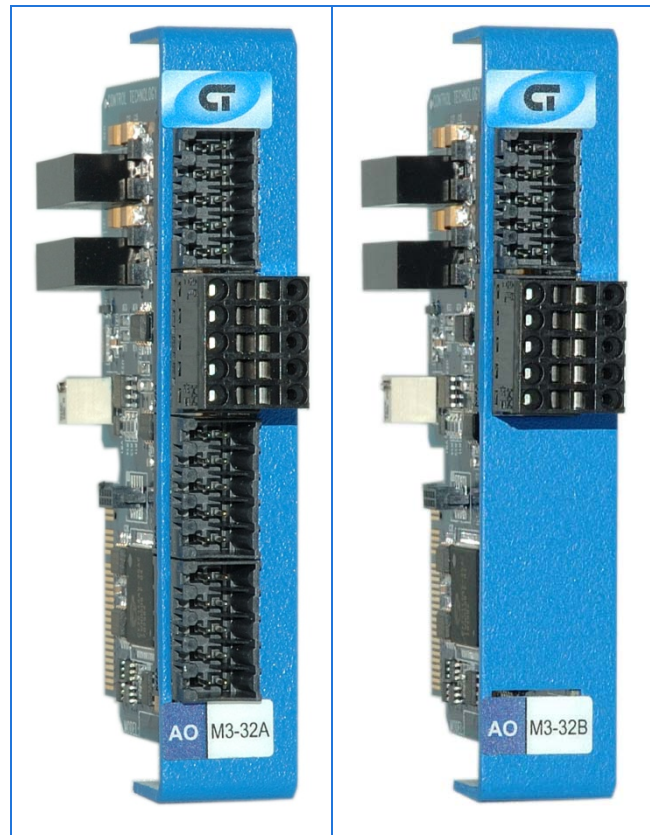
**M3-32A:** 32 analog outputs ( $\pm 10$  VDC)

**M3-32B:** 16 analog outputs ( $\pm 10$  VDC)

- ▶ 16-bit analog converter
- ▶ Each channel is optically isolated

### General specifications

Outputs per module:	
M3-32A	32
M3-32B	16
Output type	Voltage, $\pm 10$ VDC (single ended)
Analog ground type	Isolated from CPU electronics
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)	0.26 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: 950-533201-002	

<i>Analog output module</i>	AO	M3-32A
	AO	M3-32B

## Performance specifications

Parameter	Value
Output range	-10 V to +10 V
Output resolution	16-bit
Full range calibration error <sup>1,2</sup>	0.025% of range
Offset calibration error at 0 V <sup>1,2</sup>	0.025% of range
Linearity error (full range) <sup>1,2</sup>	0.073% of range
Output slew rate	10 V/ $\mu$ sec
Max output current	5 mA/channel
Update rate (all channels):	
M3-32A	313 Hz
M3-32B	625 Hz

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

# Analog output module

AO

M3-32A

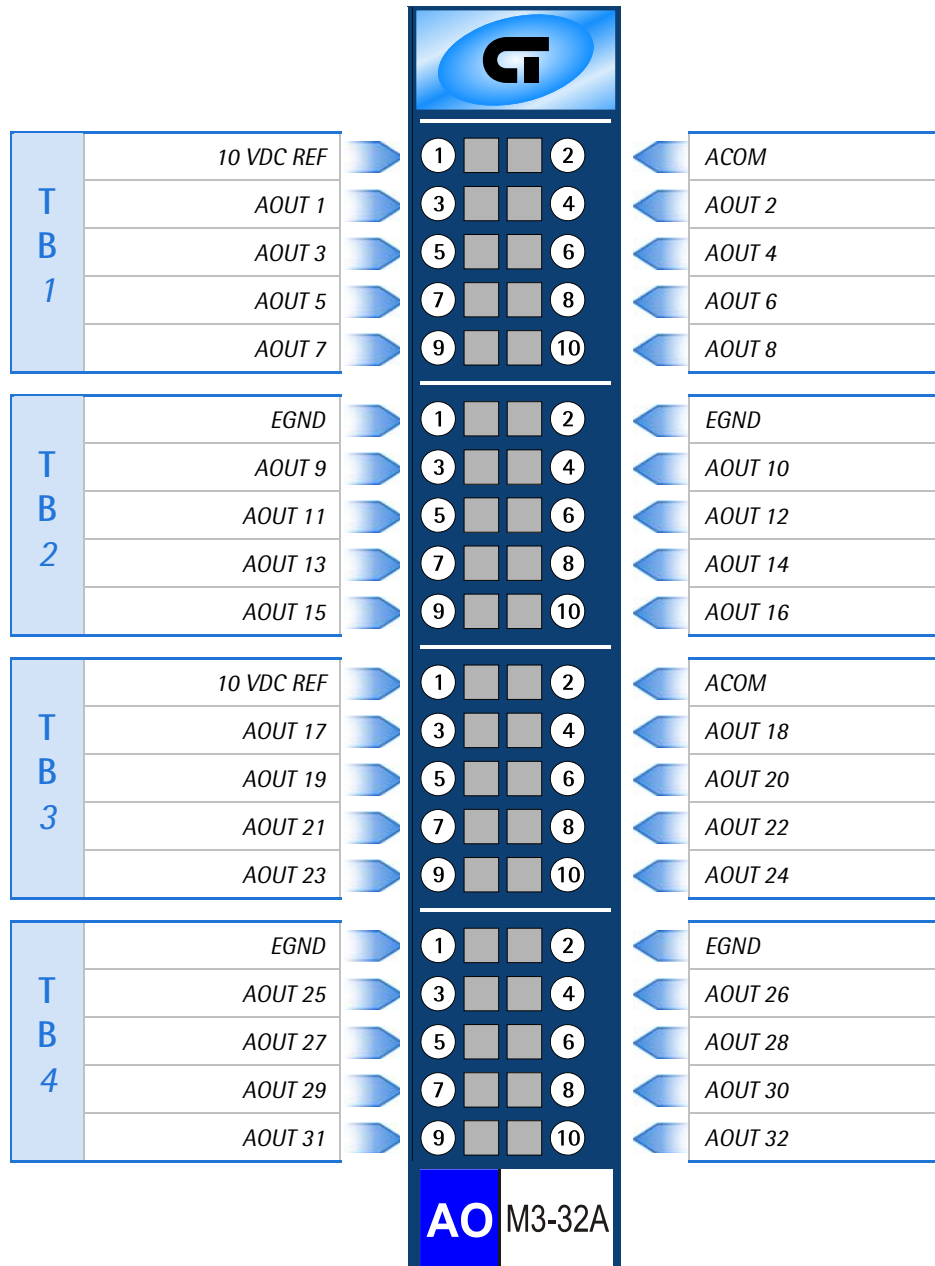
AO

M3-32B

M3-32A: 32 analog outputs ( $\pm 10$  VDC)

M3-32B: 16 analog outputs ( $\pm 10$  VDC)

## Terminal block connections



### Notes

1. TB3 and TB4 not available on M3-32B.
2. Max total current for all 10 VDC REF connections is 25 mA per module.

## Analog output module

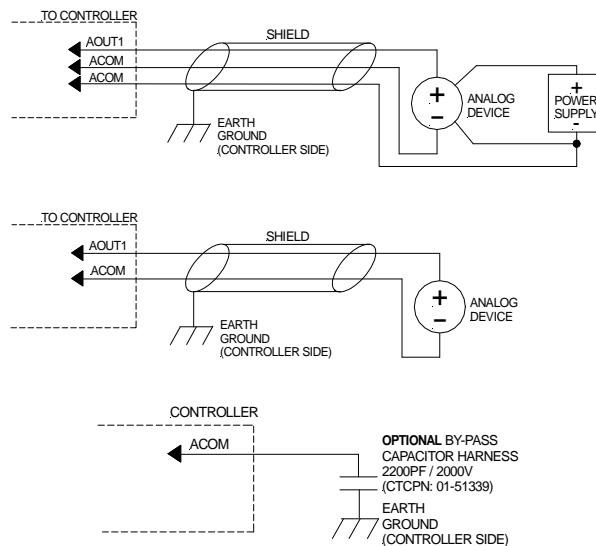
AO

M3-32A

AO

M3-32B

## 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  $V_S = 24 \text{ VDC}$  @  $25^\circ\text{C}$  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.
7.  $V_S$  refers to the voltage supply of the controller.