

## Analog combo I/O module

AI/O

M1-30C

Analog combo 2 in (4-20 mA), 2 out ( $\pm 10$  VDC)

- ▶ 16-bit input; 12-bit output 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

### General specifications

Inputs per module	2 (single ended)	Bus power required (5 VDC)	0.2 mA
Outputs per module	2 (single ended)	Isolation rating	500 VDC
Input type	Current, 4 – 20 mA	Operating temperature	
Output type	Voltage, $\pm 10$ VDC	Horizontal installation <sup>1</sup>	0 – 50°C
Connector	Removable	Vertical installation <sup>1</sup>	0 – 45°C
Connection type	Screw terminal	Storage temperature	-25 – 85°C
Terminal wire size	14 – 22 AWG	Humidity	5 – 95% non-condensing
Test point	All connections	5100 equivalent part number	R
Module size	1 controller bay		

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

### Performance specifications

Parameter	Value	Parameter	Value
Input range	4 – 20 mA	Full range calibration error <sup>1,2</sup>	0.013% of range
Output range	-10 V to 10 V	Offset calibration error at 0 V <sup>1,2</sup>	0.013% of range
Input resolution	16-bit	Linearity error (full range) <sup>1,2</sup>	0.037% of range
Output resolution	16-bit	Digital input filter size (settable)	1-255 samples
Input resistance		Digital input filter rate	5 msec
+Ain to ACOM	500 $\Omega$	Output slew rate (max)	10 V/ $\mu$ sec
(4 – 20 mA resistor)		Max output current	5 mA
Max input voltage	$\pm 40$ VDC	Controller engineering units (channel configurable)	20 mA = 10,000 or 20 mA = 20,000 or 20 mA = 10,000,000

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

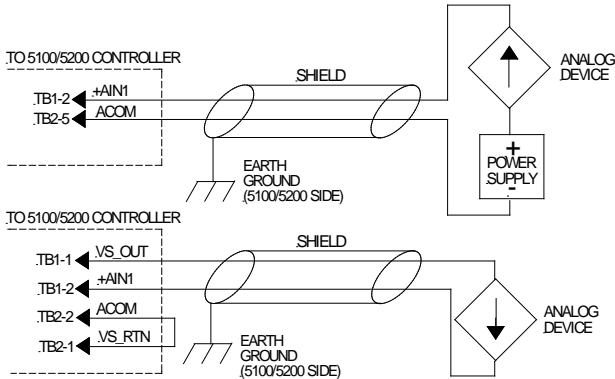
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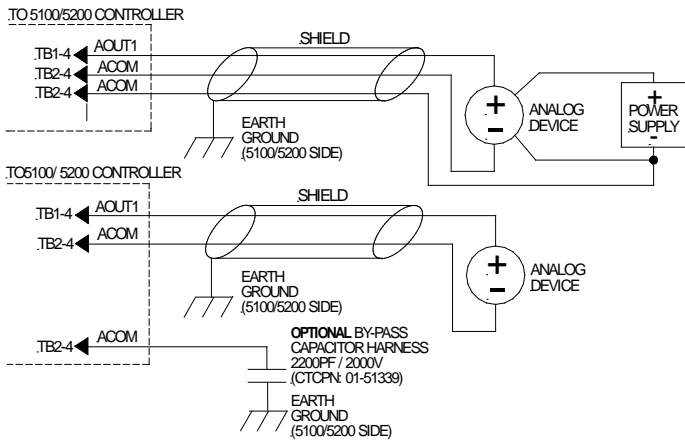
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### Typical Application

#### Analog Input Application



#### Analog Output Application

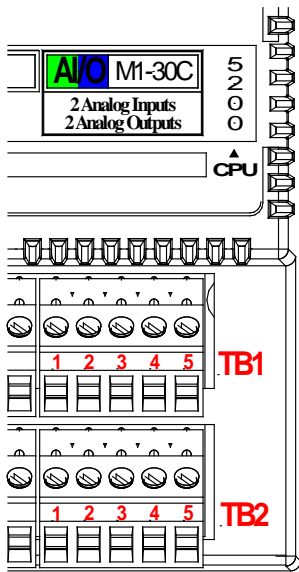


	5100	5200
Minimum hardware revision	E	E
Minimum firmware revision	1.07	1.07
Minimum operating system revision	4.04.12	5.06
Document number: 950-513007-0004		

### Notes

- Shield grounds must be terminated on the controller side of the cable.
- 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.
- For register and programming information, refer to the appropriate controller Applications Guide.
- 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](http://www.ctc-control.com).
- VS refers to the voltage supply of the controller.

### Connections



#### I/O Terminations

TB1-1	VS_OUT
TB1-2	+Ain #1
TB1-3	+Ain #2
TB1-4	Aout #1
TB1-5	Aout #2
TB2-1	VS_RTN
TB2-2	ACOM
TB2-3	ACOM
TB2-4	ACOM
TB2-5	ACOM