

Analog Input Loop and Differential Modules

The Analog Input Loop and Analog Input Differential modules plug into a ROC300-Series Remote Operations Controller or FloBoss™ 407 Flow Manager to monitor current loop and voltage output devices. Each module can accommodate one analog input, and each uses a scaling resistor for converting loop current to input voltage.

The loop module provides a current source for powering current loop devices. The differential module monitors loop current or voltage input from externally-powered devices and is semi-isolated from the ROC power supplies.

Field wiring connections are made through a separate terminal block that plugs in next to the module. This design facilitates replacement of the module without disconnecting field wiring.

Analog Input Loop Module Specifications

FIELD WIRING TERMINALS

- A:** Loop Power (+T).
- B:** Analog Input (+).
- C:** Common (-).

INPUT

- Type:** Single-ended, voltage sense. Current loop with scaling resistor (R1).
- Loop Current:** 0 to 25 mA maximum range. Actual range depends on scaling resistor used.
- Voltage Sensing:** 0 to 5 V dc, software configured.
- Accuracy:** 0.1% of full scale (20 to 30°C). 0.5% of full scale (-40 to 70°C)

INPUT (CONTINUED)

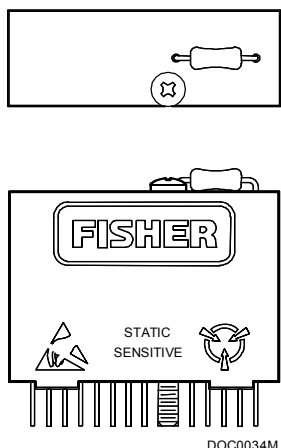
- Impedance:** Greater than 400 KΩ (without scaling resistor).
- Normal Mode Rejection:** 50 dB @ 60 Hz.

POWER REQUIREMENTS

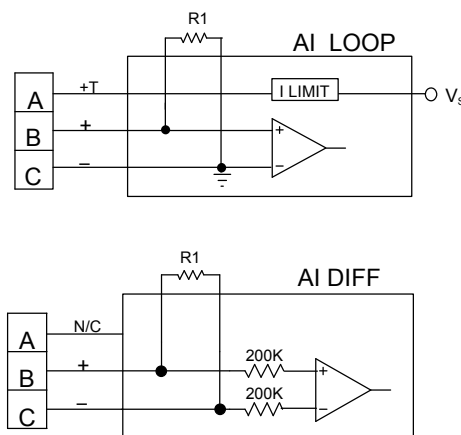
- Loop Source:** 25 mA maximum, from ROC or FloBoss power circuits or I/O converter card ($V_s = 11$ to 30 V dc).
- Module:** 4.9 to 5.1 V dc, 6 mA maximum; -4.5 to -5.5 V dc, 2 mA maximum (supplied by ROC).

ISOLATION

- Not isolated. Terminal C tied to power supply common.



Typical Analog Input Module



Simplified Input Schematics

Analog Input Differential Module Specifications

<p>FIELD WIRING TERMINALS</p> <p>A: Not used.</p> <p>B: Positive Analog Input (+).</p> <p>C: Negative Analog Input (-).</p> <p>INPUT</p> <p>Type: Voltage sense. Externally-powered current loop sensing with scaling resistor (R1).</p> <p>Voltage: 0 to 5 V dc, software configured.</p> <p>Accuracy: 0.1% of full scale (20 to 30°C). 0.5% of full scale (-40 to 70°C).</p>	<p>INPUT (CONTINUED)</p> <p>Normal Mode Rejection: 50 dB @ 60 Hz.</p> <p>Impedance: Greater than 400 KΩ (without scaling resistor).</p> <p>POWER REQUIREMENTS</p> <p>4.9 to 5.1 V dc, 6 mA maximum; -4.5 to -5.5 V dc, 2 mA maximum (supplied by ROC).</p> <p>INPUT ISOLATION</p> <p>Greater than 400 KΩ input to power supply common.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Analog Input Common Specifications

<p>SCALING RESISTOR</p> <p>250 ohm (supplied) for 0 to 20 mA full scale. 100 ohm for 0 to 50 mA (externally-powered only).</p> <p>RESOLUTION</p> <p>12 bits.</p> <p>FILTER</p> <p>Single pole, low-pass, 40 millisecond time constant.</p> <p>CONVERSION TIME</p> <p>30 microseconds typical.</p> <p>VIBRATION</p> <p>20 Gs peak or 0.06 in double amplitude, 10 to 2,000 Hz, per MIL-STD-202, method 204, condition F.</p> <p>MECHANICAL SHOCK</p> <p>1500 Gs 0.5 millisecond half sine per MIL-STD-202, method 213, condition F.</p>	<p>CASE</p> <p>Solvent-resistant thermoplastic polyester, meets UL94V-0. Dimensions are 15 mm D by 32 mm H by 43 mm W (0.60 in. D by 1.265 in. H by 1.69 in. W), not including pins.</p> <p>ENVIRONMENTAL</p> <p>Meets the Environmental specifications of the ROC or FloBoss unit in which the module is installed, including Temperature, Humidity, and Transient Protection.</p> <p>WEIGHT</p> <p>37 grams (1.3 ounces).</p> <p>APPROVALS</p> <p>Approved by CSA for hazardous locations Class I, Division 2, Groups A, B, C, and D.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Bristol, Inc., Bristol Babcock Ltd, Bristol Canada, BBI SA de CV and the Flow Computer Division, are wholly owned subsidiaries of Emerson Electric Co. doing business as Remote Automation Solutions ("RAS"), a division of Emerson Process Management. FloBoss, ROCLINK, Bristol, Bristol Babcock, ControlWave, TeleFlow and Helicoid are trademarks of RAS. AMS, PlantWeb and the PlantWeb logo are marks of Emerson Electric Co. The Emerson logo is a trademark and service mark of the Emerson Electric Co. All other marks are property of their respective owners.

The contents of this publication are presented for informational purposes only. While every effort has been made to ensure informational accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. RAS reserves the right to modify or improve the designs or specifications of such products at any time without notice. All sales are governed by RAS' terms and conditions which are available upon request. RAS does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any RAS product remains solely with the purchaser and end-user.

Emerson Process Management

Remote Automation Solutions

Marshalltown, IA 50158 U.S.A.
Houston, TX 77041 U.S.A
Pickering, North Yorkshire UK Y018 7JA

