Series 5

Analog Current Output

Local CM (CM-1-439)

This document specifies the CM-1-439 isolated Analog Output (AO) Conditioning Module (CM). The CM accepts a 4 to 20 mA input and provides an isolated 4 to 20 mA output signal. The module can drive a 20 to 800 Ω resistive load. CM-1-439 supports open field wire detection with a 5 ms response time. See open wire detection on page 2 for details.

Refer to the following data sheets for additional information.

- *Vanguard Control System Hardware Specifications* [DS5001]
- *Vanguard Environmental Specifications* [DS5002]
- *Reliant Control System Hardware Specifications* [DS5051]
- *Reliant Environmental Specifications* [DS5052]

Table 1 CM-1-439 Specifications

Part Number	CM-1-439
Nominal Operating Range	4 to 20 mA (measurable range: 0 to 30 mA)
Load Resistance	20 to 800 Ω (dependent on power supply
Normal Operating Limit	Common Mode: up to 250 Vdc both pins to IRG
Certified Safety Limit	Common Mode: 240 Vrms
Destructive Limit	Common Mode: 250 Vrms
	Differential output: 240 Vrms Differential input: 35 Vdc
Protection	Short circuit current limited (30 mA) between field signal pins
Logic Voltage	14 to 35 Vdc @ 60 mA
Dimensions	2.1" high x 0.60" wide x 1.7" deep (5.3 x 1.5 x 4.3 cm)

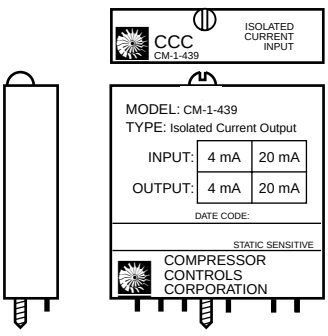

Figure 1 CM-1-439 Analog Output Module

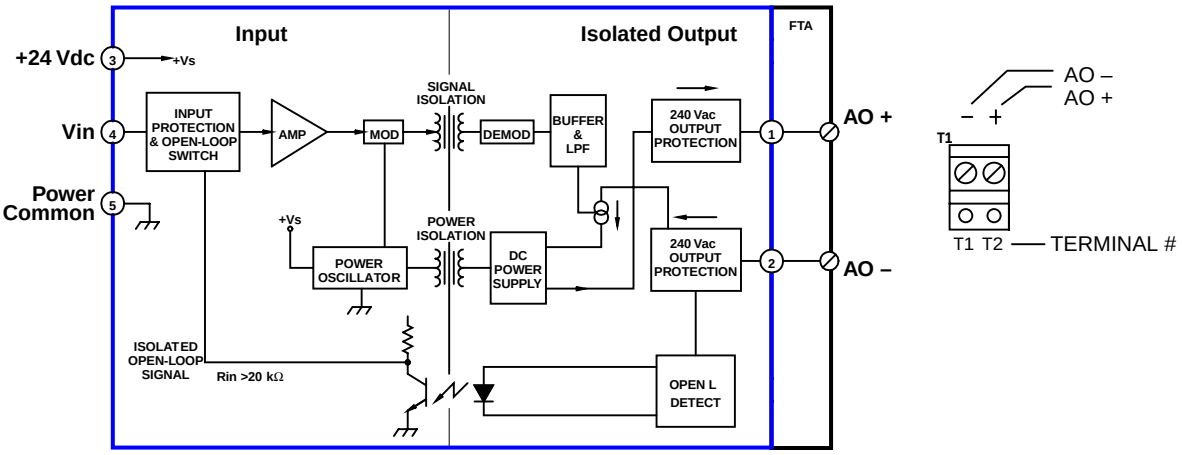

Figure 2 Analog Output CM Wiring Block Diagram

Note: The input resistance of this module can not be measured using an ohm meter. When the module is not powered, the resistance reading will read open. Use a voltage/current method to measure the input resistance.

Note: Do not use the IOC analog output without using this conditioning module.

Local conditioning modules can be installed in the following assemblies. See the following data sheets for additional information.

- *Vanguard SimplexAnalog I/O FTA* [DS5203]
- *Vanguard DuplexAnalog I/O FTA* [DS5205]
- *Reliant SC Controller* [DS5152]

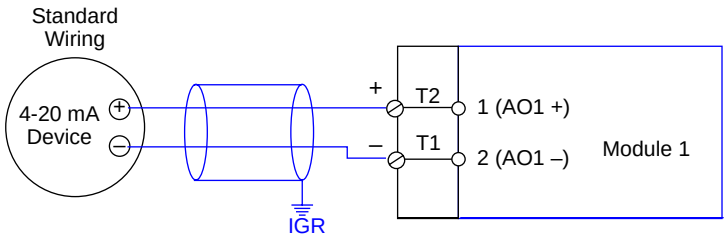

Figure 3 CM-1-439 Wiring Block Diagram

The CM-1-439 provides a feature that can detect an open field wire. When a fault is detected a large (20k Ω) load is placed on the input from the card as shown in Figure 2. The card analog output can not drive this large load causing the analog output read-back signal to detect a fault.

Note: If a CM-1-439 failure occurs, the same failure indication could be reported by the Input/Output Card. Further testing would be required to determine which failure has occurred.

COMPRESSOR CONTROLS CORPORATION
4725 121st Street, Des Moines, Iowa 50323-2316, U.S.A.
Phone: (515) 270-0857 • Fax: (515) 270-1331 • Web: www.cccglobal.com