Discrete Input Source and Isolated Modules

The Discrete Input Source and Discrete Input Isolated Modules plug into a ROC300-Series Remote Operations Controller (ROC) or a FloBoss™ 407 Flow Manager and are used for monitoring the status of relays, solid-state switches, or other two-state devices. Each module can accommodate one discrete input.

Both types of modules provide an LED to show when the input is active and use a scaling resistor for scaling the input range. The input for either module can be set up as momentary, latched, or time duration by means of the configuration software.

The source module provides a source voltage for dry relay contacts or for an open-collector solid-state switch. The isolated module accepts an external voltage from a powered two-state device while maintaining electrical isolation from the ROC power supplies.

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

Source Module Specifications

FIELD WIRING TERMINALS

A: Not used

B: Discrete device source/signal

C: Common

INPUT

Type: Contact sense.

Range: Inactive, 0 to 0.5 mA. Active, 2 to 9 mA.

Source Voltage: 11 to 30 V dc.

Source Current: Determined by source voltage (Vs), loop resistance (Rl), and scaling resistor (Rs, 10 ohm supplied):

I = (Vs - 1)/(3.3K + Rl + Rs)

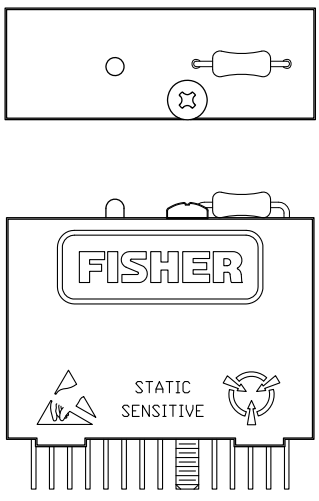
POWER REQUIREMENTS

Source Input: 9 mA maximum from ROC or FloBoss power circuits or I/O converter card (V_S=11 to 30 V dc).

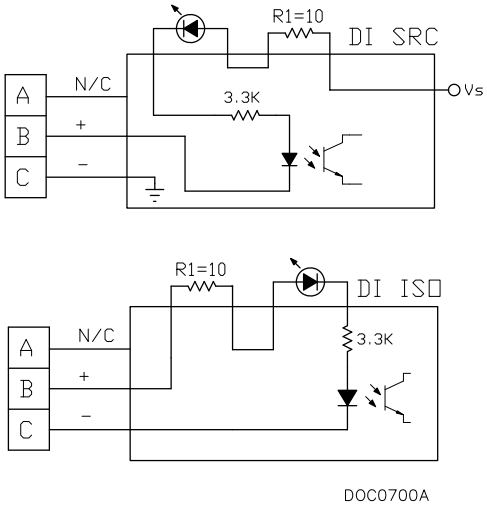
Module: 4.9 to 5.1 V dc, 1 mA maximum (supplied by ROC or FloBoss).

INPUT ISOLATION

Not isolated. Terminal C tied to power supply common.



Discrete Input Module



Simplified Input Schematics

D301008X012

Isolated Module Specifications

FIELD WIRING TERMINALS

A: Not used

B: Positive discrete input

C: Negative discrete input

INPUT

Type: Two-state current sense.

Range: Inactive; 0 to 0.5 mA. Active; 2 to 9 mA.

Current: Determined by input voltage (Vi), loop resistance (Rl), and scaling resistor (Rs, 10 ohm supplied):
I = (Vi - 1)/(3.3K + Rl + Rs)

Maximum Voltage: 30 V dc forward, 5 V dc reverse.

POWER REQUIREMENTS

4.9 to 5.1 V dc, 1 mA maximum (supplied by ROC).

INPUT ISOLATION

Insulation: 100 MΩ minimum, input to output, and input or output to case.

Voltage: 4,000 V ac (RMS) minimum, input to output.

Capacitance: 6 pF typical, input to output.

Common Specifications

INPUT

Loop Resistance (Rl): 4.5 kΩ maximum.

Frequency Response: 0 to 10 Hz maximum, 50% duty cycle.

Input Filter (Debounce): Software filter is the amount of time that the input must remain in the active state to be recognized.

VIBRATION

20 Gs peak or 0.06 in. double amplitude, 10 to 2,000 Hz, per MIL-STD-202, method 204, condition F.

MECHANICAL SHOCK

1500 Gs 0.5 millisecond half sine per MIL-STD-202, method 213, condition F.

WEIGHT

37 grams (1.3 ounces).

CASE

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 1.27 in. H by 1.69 in. W), not including pins.

ENVIRONMENTAL

Meets the environmental specifications of the ROC or FloBoss unit in which the module is installed, including Temperature, Humidity and Transient Protection.

APPROVALS

Approved by CSA for hazardous locations Class I, Division 2, Groups A, B, C, and D.

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