



Model 10 Auto-Isolator Instruction Manual

I.S. No.: 100772-900
Date: February, 2003
Supersedes: February, 1987

1. GENERAL INFORMATION

The Transmation Model 10 Auto-Isolator provides the necessary signal isolation required by process circuits influenced by ground loops, high common mode noise and other interference. Requiring no separate power supply, the Model 10 operates from input signal current and re-transmits the current applied to the input into a load of up to 500 ohms. A trim adjustment potentiometer allows the precise matching of the Model 10's output current to the total resistance of the signal receiving loop. The same instrument can be used with a 4-20 mA, 10-50 mA or other ranges between 4 mA and 40 mA. The input is protected against polarity reversal or excess voltage due to open-circuiting of the load.

2. SPECIFICATIONS

Input: 4-20 mA, 10-50 mA or other mA spans within range of 4 to 50 mA

Input voltage: Varies according to load resistance (see Figure 1)

Load Trim Adjustment: Screwdriver-adjustable potentiometer, 10 to 500 ohms; factory set for 250 ohm load

Output Ratings: 4-20 mA with loads from 0 to 500 ohms; 10-50 mA with loads from 0 to 300 ohms (see Figure 1)

Power Requirements: Signal-powered

Accuracy:

4-20 mA span:

±0.1% of span, 10-300 ohms

±0.2% of span, 300-500 ohms

10-50 mA span:

±0.1% of span, 10-250 ohms

±0.2% of span, 250-300 ohms

Load Resistance Effect: Less than 0.05% of span change for 1% of load resistance

Linearity Error: Less than ±0.05% of span

Temperature Effect:

Zero change: Less than ±0.018% of span/°C (±0.01°F)

Span change: Less than ±0.009% of span/°C

(±0.005%/°F)

Isolation Rating (Hi-Pot.): 1500 VAC RMS continuous, input/output/case

RFI Rating: SAMA 33.1 (1978): Class 2-abc: 0.5% of span

Common Mode Rejection: 120 dB @ 60 Hz

Environmental Capabilities:

Temperature: -40°C to 60°C (-40°F to 140°F)

Humidity: 10% to 95% RH

Altitude: 0-10,000 Ft.

Vibration: 1 g @ 1-10 Hz; 0.2" DA @ 10-30 Hz; 5 g @ 30-100 Hz

Connections: four-position screw-type terminal block

Housing: Cast aluminum

Dimensions: 75 mm diam., 48 mm H (2.95" diam., 1.88"H)

Weight: 0.17 kg (6 oz.)

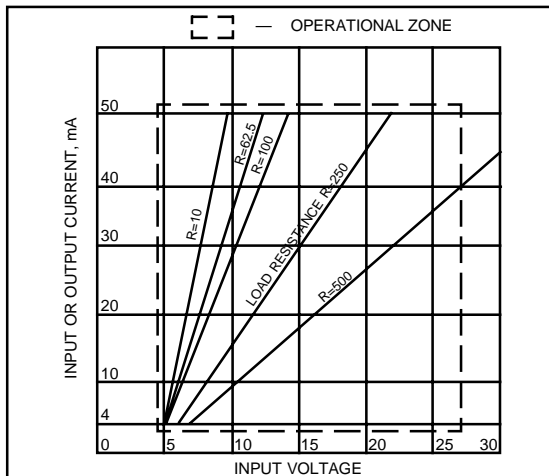


FIGURE 1
INPUT/OUTPUT AND LOAD CAPABILITIES

3. INSTALLATION

The instrument can be bulkhead-mounted or installed in a 3-inch conduit box. The mounting site should be relatively free of dust and corrosives with an ambient temperature between -40°C and 60°C (-40°F and 140°F) with a mounting surface that is not subject to excessive vibration. All electrical connections are made to the terminal strip (see Figures 2, 3 and 4).

NOTE

For primary loop currents greater than 35 mA, do not operate a Model 10 with the secondary loop open-circuited for more than 10 minutes. Such extended operation may cause a protection zener diode in the primary loop to overheat.



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4. CALIBRATION

The only calibration procedure required on the Model 10 is the adjustment of the trim control potentiometer to match the Model 10 to the load resistance of the output.

It is recommended that the Model 10 be calibrated in the loop in which it is installed. DO NOT add or remove any components from the output side of the loop after calibration or instrument accuracy will be affected.

Prior to inserting the Model 10, connect a current source to the loop in which the Model 10 will be installed. Set the current source to 16 mA for a 4-20 mA loop or 40 mA for 10-50 mA loop. Observe and record the voltage output with an external voltmeter. Alternately, record the reading from a current meter, recorder or indicator that is permanently installed in the loop (see Figure 5).

Connect the Model 10 into the circuit with the current source set to the same value as instructed above. Adjust the trim control potentiometer to obtain readings identical to the readings taken without the Model 10 in the loop.

5. INPUT/OUTPUT CAPABILITIES

The current/voltage output of the Model 10 varies in accordance with the load resistance as detected at the instrument's output. Figure 1 shows the current-to-voltage values for various loads up to 500 ohms. Before installing a Model 10, it must be established that the transmitter powering the Model 10 is capable of supplying the necessary input voltage (as shown in Figure 1) for the given load and full scale current values selected.

6. FACTORY SERVICE

In the event that service is required, the instrument should be returned to the factory for repairs. It is recommended that a spare instrument be kept on hand to provide continuity of service. When returning instruments, please assist our Service Department by providing a description of the problem. Instruments should be shipped prepaid via Air Parcel Post (Special Handling), UPS or other means as the urgency of service requires, to:

Factory Service Department
Pyragon, Inc.
95 Mt. Read Blvd., # 149
Rochester, NY 14611

7. WARRANTY

The standard warranty as stated on the Pyragon, Inc. invoice applies.

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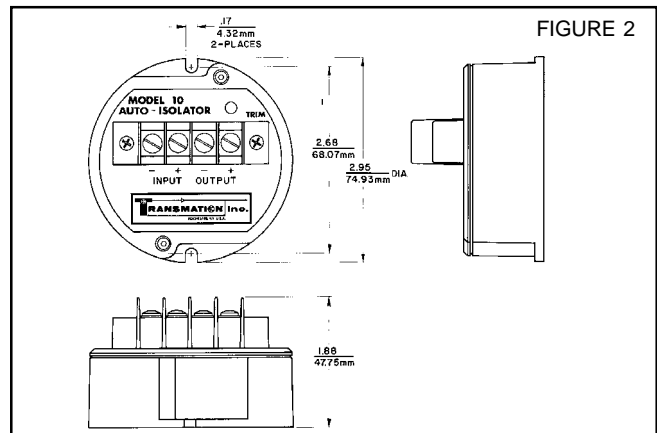


FIGURE 2

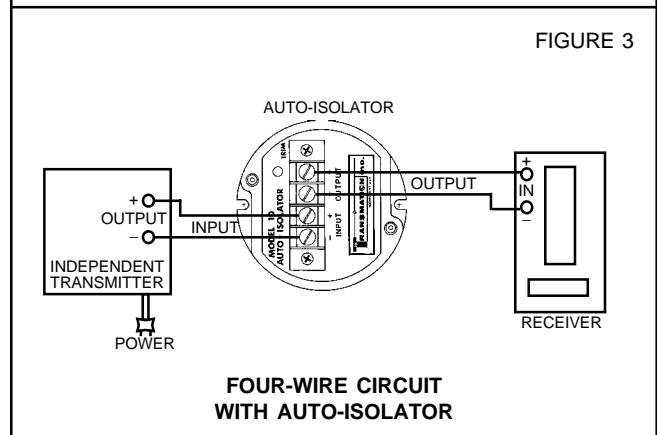


FIGURE 3

FOUR-WIRE CIRCUIT WITH AUTO-ISOLATOR

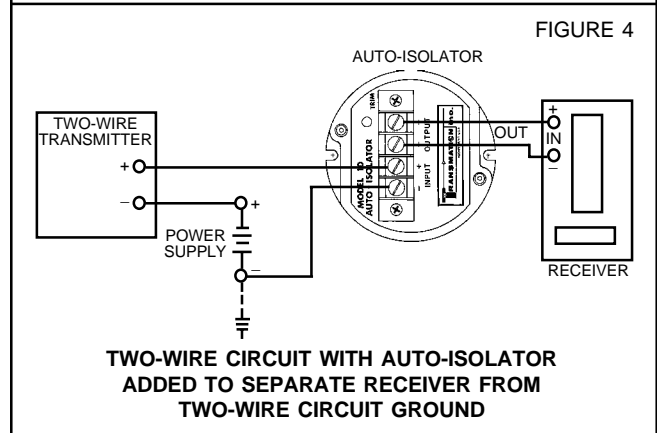


FIGURE 4

TWO-WIRE CIRCUIT WITH AUTO-ISOLATOR ADDED TO SEPARATE RECEIVER FROM TWO-WIRE CIRCUIT GROUND

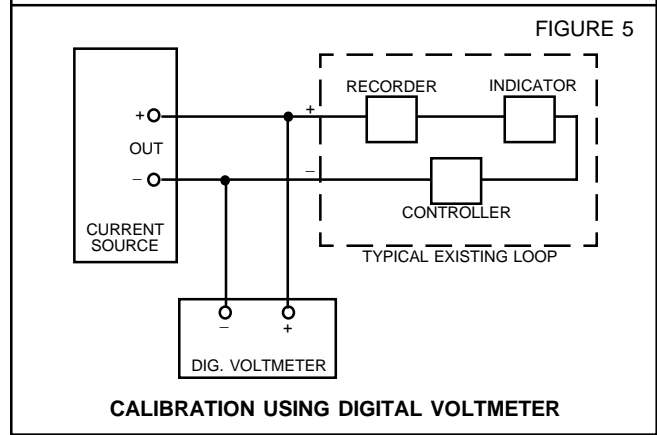


FIGURE 5

CALIBRATION USING DIGITAL VOLTMETER



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