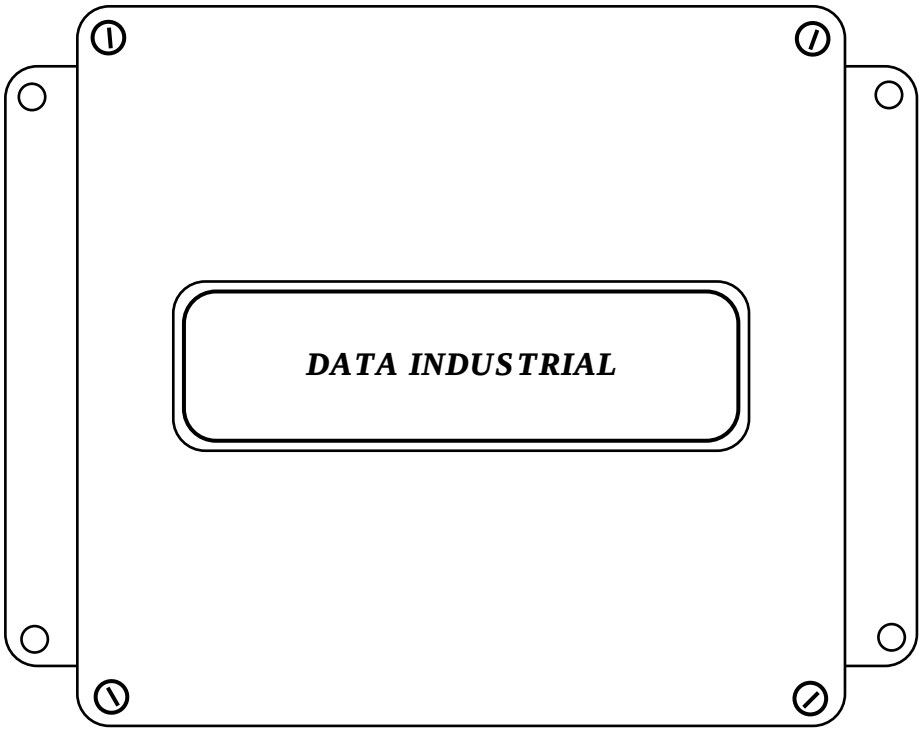
Model 750M

Analog Output Transmitters
by Data Industrial



Owner's Manual

Data
Industrial

7/93
PN#72050

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Introduction

The Model 750M is a Digital to Analog (D/A) converter designed to operate in conjunction with all Data Industrial non-magnetic flow sensors. The unit can be easily recalibrated in the field by using a Data Industrial Model 900T, 950T, 1000, or 1200 Digital Display. The following analog output signals are available by simply repositioning a selection jumper bar.

Selectable Analog Outputs:

1. 4-20ma
2. 0-1 volt
3. 0-5 volts
4. 0-10 volts

The overrange limits and output impedance for each of these output forms can be found under the *Specifications* section. The D to A converter is a 4-wire device where the analog output is isolated from the power supply.

Installation

The Model 750 is housed in a NEMA 4 steel housing. It can be mounted to any vertical surface through four 5/16" mounting holes located on the rear mounting flange. A gasketed front cover plate is attachable with four retaining screws to provide access to the inside of the unit.

To install the Model 750M, proceed as follows, referring to Figure 1 on the next page as necessary:

1) Unfasten the four retaining screws on the front cover and remove the cover.

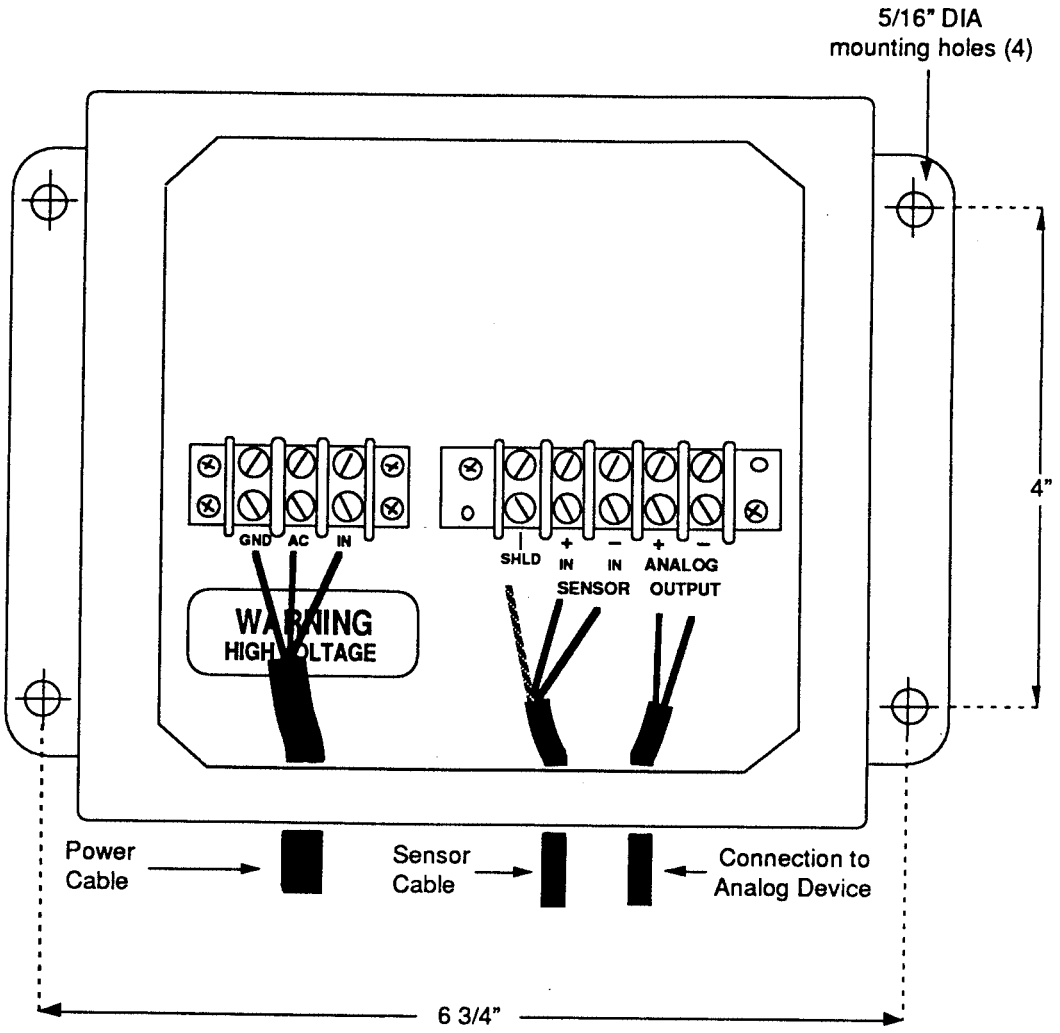
2) Connect the AC power to the barrier strip marked "AC IN." Make sure the rotary selector switch is turned to the appropriate input voltage: 120VAC or 230VAC. Replace the protective cover over the barrier safety strip is replaced so that future work in the unit does not cause injury to the technician.

3) Connect the positive (Red) wire from the transducer cable to the "+" IN position on the barrier strip marked sensor. Connect the negative (Black) wire from the transducer cable to the "-" IN position on the same barrier strip. Then connect the cable shielding (bare wire) to the barrier strip position marked "SHLD."

4) Connect the positive and negative leads from the analog device to the terminals marked "Analog Output."

5) The unit is now ready for calibration.

Figure 1
Installation Drawing



Note: During the calibration procedure, disconnect this sensor cable and insert a jumper cable between the sensor input terminals of the 750M and the Models 900, 950, 1000, or 1200.

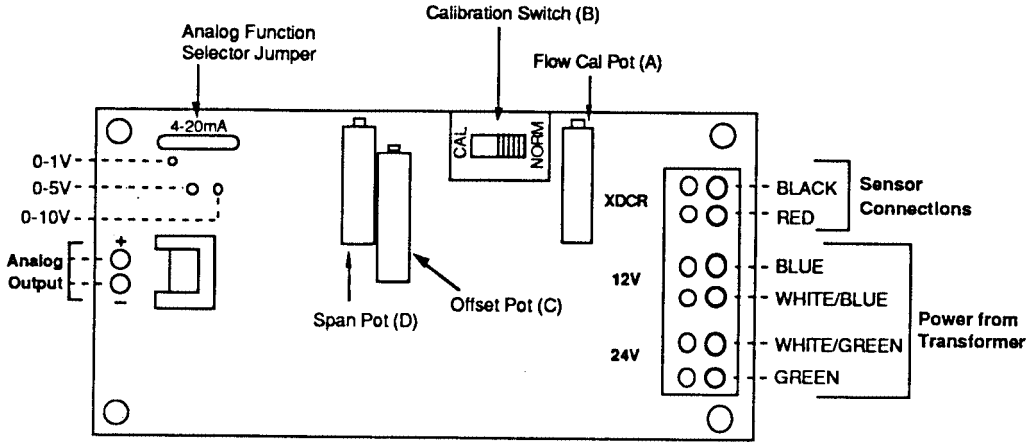
Calibration

To calibrate the Model 750M, it must be cnnected to a power supply and disconnected from the flow sensor. The sensor terminals are then connected to a Model 900T, 950T, 1000, or 1200 display unit. The only other test equipment required is an ammeter (or voltmeter if using the 0-1v, 0-5v, or 0-10v form). **Important**: the Model 900T, 950T, 1000,or 1200 should be calibated for the proper pipe size before attempting to calibrate the Model 750M.

Proceed as follows:

1) Position the selection jumper bar to select the analog output desired. This is done by physically pulling out a black jumper and inserting it into the correct position. (See Figure 2.) Selections are 4-20ma, 0-1v, 0-5v, and 0-10v. The black jumper is located on the circuit board.

Figure 2



Analog Output Board

2) Connect the sensor input terminals on the 750M to the sensor input terminals on the barrier strip of the 900T, 950T, 1000, or 1200. This will allow the signal generated by the onboard oscillator of the 750M, enabled in “CAL”, to input a flow signal to the monitor. With the proper I.D. set on the monitor, the displayed flow rate is adjustable using the "Cal Pot" on the 750M.

3) Connect the power to the Model 900T, 950T, or 1000. The portable Model 1200 has internal batteries.

4) Connect an ammeter, voltmeter, or other analog device to the analog output terminals on the Model 750M barrier strip.

5) Place the slide switch located on the 750M circuit board into the “NORM” position. Adjust the Offset Potentiometer (C) for the desired analog output for a zero flow condition. **Important**: Make certain that you approach the zero point from the positive output position. It is possible to adjust the Offset Pot (C) to a number less than zero; this could produce improper signal resolution.

6) Place the Calibration Switch (B) located on the 750M circuit board into the “CAL” position. This turn on the onboard oscillator and allows the 750M to “talk” to the Model 900T, 950T, 1000, or 1200 display. A flow rate should appear on the LCD. If only zeros are shown, adjust Flow Cal Pot (A) clockwise until a positive flow rate appears. Continue to adjust Flow Cal Pot (A) until the desired flow rate for full scale reading is reached.

7) With the Calibration Switch (B) in the “CAL” position, adjust the Span Pot (D) until the desired full scale output is obtained as indicated by the analog monitoring device (either ammeter, voltmeter, or recorder).

8) Place the Calibration Switch (B) back to the “NORM” position.

9) Place a drop of torque seal, or similar material, on the adjustment screw of the three potentiometers to prevent loss of calibration adjustments while the unit is in service.

10) Disconnect wire connections between the sensor positions on the Model 900T, 950T, 1000, or 1200 display and the Model 750M.

11) Your unit is now fully calibrated and ready to use. Connect the wires from the sensor and replace the cover plate.

Specifications

Operating Temperature
0° to 55°C

Storage Temperature
-40° to +70°C

Power Requirements
120VAC (.2VA) and 240VAC (2VA), 50/60Hz

Sensor Input Requirements
from -0 to 8 volts, typical no rise limits, compatible with Data Industrial 220 series sensors

Span Adjustment Range
from -6Hz to 70Hz

Linearity
less than 1%

Output Response Time
6 seconds (typical); 10% to 90% step response

Designed Output Ripple
less than 0.25% of full scale; System output ripple may exceed this value due to the dynamics of the application

4 - 20mA Configuration
1. Output Impedance: greater than 1 Meg Ohm shunted by 1 microfarad
2. Output Compliance: 22 volts (typical); 0 to 1100 ohms
3. Maximum Output Current: 35mA (maximum)

0 - 1 Volt Configuration
1. Output Impedance: 62 ohms (typical) shunted by 1 microfarad
2. Overrange Output Voltage: 2.2 volts (maximum)

0 - 5 Volt Configuration
1. Output Impedance: 330 ohms (typical) shunted by 1 microfarad
2. Overrange Output Voltage: 12 volts (maximum)

0 - 10 Volt Configuration
1. Output Impedance: 620 ohms (typical) shunted by 1 microfarad
2. Overrange Output Voltage: 22 volts (maximum)

Warranty

Data Industrial Corporation (“Seller”) of 11 Industrial Drive, Mattapoisett, Massachusetts 02739, U.S.A., warrants to the original purchaser of its product that such product manufactured by Data Industrial Corporation shall be free from defects in materials or workmanship when installed, serviced and operated according to Data Industrial corporation instructions or in other such normal use. This warranty is effective for a period of 12 months from the date of installation by the Purchaser or 18 months from the date of shipment by the “Seller” whichever occurs or terminates first. This limited warranty does not cover damage or loss resulting from corrosion or erosion cased by acids or other chemicals or negligent installation improper operation, misuse, accident, unauthorized repair or substitution of components other than those provided by the “Seller”, and does not cover limited life components such as bearings, shafts, impellers where wear rate is a function of application. Any component not manufactured by the “Seller” but included in its products shall not be covered by this warranty and is sold only sunder such warranty as the manufacturer may provide.

If Buyer or Purchaser wishes to make a claim hereunder, he shall send written notice of any defect within the warranty period, to “Seller” at the above address. “Seller” may at its sole option instruct Buyer to ship subject part, postage prepaid, to the “Seller” at above address or authorize a representative to inspect the part on site. “Seller” will at its sole option repair or replace any effective product covered by this warranty. If Buyer makes repairs or alterations to any product or part covered by this warranty without “Sellers” prior written approval, this warranty shall be null and void.

The foregoing shall constitute Buyers or Purchasers sole and exclusive remedy against “Seller”, and no other remedy, including but not limited to, incidental or consequential damages for personal injury, loss of fluids, gases or other substances or for loss of profits or injury to property or person shall be available to the Buyer or Purchaser. The warranty extended herein shall be in lieu of any other implied warranty of merchantability or fitness for a particular purpose, and seller shall bear no liability for representatives or retail sellers. In no event shall Data Industrial Corporation be liable for any contingent, incidental, or consequential damage or expenses due to partial or complete inoperability of its product.