MODEL 2400 I/P TRANSDUCER (INPUT to PRESSURE)

Specifications – Installation and Operating Instructions

SPECIFICATIONS

GENERAL
Output Range: 3-15 PSIG (21-105 kPa)
Output Range: (Optional) 6-30 PSIG (42-210 kPa)
Supply Pressure: 16 PSIG (116 kPa) min.
100 PSIG (703 kPa) max.
Air Consumption: 0.6 SCFM @ 100 PSI
(18.59 lpm @ 703 kPa)
Media Compatibility: Clean, dry, oil free air or non-combustible, non-corrosive gases
Pressure Connections: Barbed, for 3/16" I.D. tubing
Electrical Connections: Six screw terminal block for 14-20 AWG wire
Cable Gland: Fits 10-25" O.D. cable
Span & Zero Adjustments: Internal potentiometers
Weight: 12 oz. (340 gr.)

ELECTRICAL
Power Supply: 24 VAC, ±10% 50/60 Hz or 28 VDC
Current Consumption: AC: 120 mA max.
DC: 110 mA max.
Input Signal: 4-20 mA DC (current)
1-5 VDC (voltage)
Input Impedance: 250 ohms (4-20 mA)
>100K ohms (1-5 VDC)
Feedback Loop: 4-20 mA (0-100Ω loop resistance)
Warm-up Time: 30 minutes

PERFORMANCE AT 70°F (21.1°C)

Linearity: ±0.5% F.S.
Accuracy: ±1.5% F.S.
Hysteresis: ±1.5% F.S.
Repeatability: ±0.5% F.S.
Operating Temperature: 32-120°F (0-50°C)
Thermal Errors: ±3% F.S. @ 120°F (50°C)
±5% F.S. @ 32°F (0°C)

The Dwyer Model 2400 Current or Voltage to Pressure Transducer converts a 4-20 mA analog input signal to a 3-15 PSI variable pneumatic output signal. Unlike past technologies which employed bleed air to maintain output signal pressures, the Model 2400 consumes no air at a steady state. Instead, it utilizes a sensitive silicon sensor and miniature electropneumatic valves to achieve this process.

Operating on either 24 VAC or 28 VDC, factory calibrated units provide a standard 3-15 PSIG output signal which can be easily reversed by simply changing a jumper position. In addition to a pneumatic output, the Model 2400 also can provide a 4-20 mA feedback signal if required. Both the output and feedback signals are field adjustable via internally accessible zero and span potentiometers. An additional feature is the Fail Bleed Mode. On loss of input signal or power, the unit will automatically bleed output pressure to zero.

INSTALLATION

Location – Select a clean, dry location where the temperature of the unit will remain between 32-120°F (0-50°C). Distance from the signal source is limited only by total loop resistance. Tubing can be practically any length required but longer runs will increase response time slightly.

Position – The Model 2400 is not position sensitive and is unaffected by moderate shock and vibration. Where possible, it is good practice to install unit with pressure connections pointing down to allow any condensation to drain out.

Mounting – Attach to mounting surface with (2) 1" – #10 pan head sheet metal screws provided.

Pressure Connections – Two barbed connections are provided. H is for the main air supply and L is for the output signal. Use 3/16" I.D. tubing with suitable pressure rating. If maximum pressure will exceed 30 PSIG secure tubing with a clamp.
FEEDBACK CALIBRATION
Follow same procedure as described in steps 5-9, above, except adjust Feedback Zero (FZ) and Feedback Span (FS) potentiometers to set required range.

REVERSE ACTION
To reverse output, move jumper from its standard position between center and F pins to R and center positions. Check zero and span, re-adjust if necessary.

VOLTAGE INPUT
For 1-5 VDC input signal, remove the solder jumper on printed circuit board directly to left of terminal 4.

Replace cover after completing electrical connections and calibration.

MAINTENANCE
Following final installation of the Model 2400 I to P Transducer and the companion receiver(s), no routine maintenance is required. A periodic check of system calibration is recommended following procedures described above. The Model 2400 Transducer is not field repairable and should be returned, freight prepaid, to the factory if service is required.

ELECTRICAL CONNECTIONS – CALIBRATION
CAUTION: Electrical connections between the power supply, input signal and feedback signal must not share a common ground.
1. Remove front cover by turning it counter-clockwise with palm of hand. Connect power supply to terminals 1 and 2.
2. Connect input signal to terminals 3 and 4.
3. If feedback signal is required, connect milliammeter or similar device to terminals 5 and 6.
4. Allow unit to warm up for 30 minutes before calibrating, if required.
5. Set input level to minimum required, 4 mA typical.
6. Adjust Zero (Z) potentiometer to minimum required output pressure, 3 PSI typical.
7. Set input level to maximum required, 20 mA typical.
8. Adjust Span (S) potentiometer to maximum required output pressure, 15 PSI typical.
9. Since Zero and Span adjustments are slightly interactive, repeat steps 5-8 as necessary until outputs are consistent.

Fig. B

Fig. C

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