T7950 SERIES ELECTRO-PNEUMATIC TRANSDUCER

Model T7950 Analog Control

Model T7950D DeviceNet™ Communication

FLOW - SCFM
SUPPLY 100 PSIG

Tested per ISA S26-1968 Configuration

Response 3.3 Hz.

Phase Shift

Gain db

Phase Shift

fHz

fHz

Tested per ISA S26-1968 Configuration

FLOW - SCFM

SUPPLY 100 PSIG

FAIRCHILD

INDUSTRIAL PRODUCTS COMPANY
GENERAL INFORMATION

The Model T7950 Series Electro-Pneumatic Transducers includes the Model T7950 with Analog input and the Model T7950D with DeviceNet™ Communications.

The Model T7950 with Analog input controls output pressure in proportion to an analog electrical input signal. An internal feedback sensor monitors output pressure to achieve high accuracy. An external electronic feedback configuration is available to control the process variable, independent of output pressure.

The Model T7950D Transducer with DeviceNet™ Communications controls output pressure in response to a digital communication command.

Common Features

Models T7950 and T7950D transducers have the following common features:

• RFI/EMI protection eliminates electromagnetic and radio interference.
• Output pressure displays in psig, BAR, kPa, or user-defined pressure units.
• Reverse acting capability for analog input and output signals
• Select Current or Voltage mode for optional analog channels using the keypad.
• Independently adjustable PID tuning coefficients
• Fully functional keypad
• Backlit Liquid Crystal display screen.

Unique Features

The Model T7950D has the following unique features:

• DeviceNet™ communications that connect the Model T7950D to a digital network to increase functional flexibility, installation speed, and reduce system wiring cost.
• Output pressure displays in user-defined pressure units.
• Optional analog output channel configured as an output pressure monitor or as a user-defined output.
• Optional analog input channel is configurable to control set point, external process variable or to accept user-defined input.

The following options are available for the Model T7950 Series transducers:

• External Pneumatic Feedback port is available to monitor downstream pressure
• Electronic Analog Input uses customer-supplied feedback sensor to control process variable.
• Electronic Analog Output Channel to monitor output pressure.

OPERATING PRINCIPLES

The Model T7950 Series transducers have a closed-loop, integrated, microprocessor-controlled electronic control system that regulates outlet pressure. You can control the output from the Model T7950 using the keypad or from an analog control signal. You can control the output from the Model T7950D using the keypad and through the DeviceNet™ communication network.

The Feed and Bleed Solenoid Valves control pressure in the Signal Chamber of the Booster Section. A pressure sensor measures the outlet pressure and provides a feedback signal to the Electronics Section. Any variation in pressure between the set point and the outlet pressure activates the Feed and Bleed Solenoid Valves to change the output pressure.
### OUTLINE DIMENSIONS

Figure 2. Outline Dimensions shown with Mounting Kit EA-16799-1 (included with unit)

Figure 3. DIN Rail Mounting Kit EA-16893 (included with unit)

### SPECIFICATIONS

#### FUNCTIONAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Pneumatic Outputs</th>
<th>Supply Pressure</th>
<th>Minimum Span</th>
<th>Electrical Supply</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>psig [BAR] (kPa)</td>
<td>[150 psig, 14 BAR, (1400 kPa) max.]</td>
<td>[12 psig [0.80 BAR] (80)]</td>
<td>24 VDC</td>
<td>Less than 4 watts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[25 psig [1.5 BAR] (150)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[50 psig [3.0 BAR] (300)]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Deadband (ISA S51.1)</th>
<th>Adjustable from 0 to 10% of full scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Accuracy (ISA S51.1)</td>
<td>Greater than 0.50% full scale</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>-3 dB @ 1 Hz per ISA S26.4.3.1 load configuration A</td>
</tr>
<tr>
<td>Supply Pressure Effect</td>
<td>No measurable effect</td>
</tr>
<tr>
<td>Vibration Effect</td>
<td>Less than 1% of span under the following conditions: 5-15 Hz @ 0.8 inches constant displacement 15-500 Hz @ 10 Gs.</td>
</tr>
<tr>
<td>RFI/EMI Effect</td>
<td>Less than 0.5%. EMC Directive 89/336/EEC per EN-61326</td>
</tr>
<tr>
<td>Materials of Construction</td>
<td>Booster Body: Aluminum, Cover: Nylon plastic, Elastomers: Fluorocarbon</td>
</tr>
</tbody>
</table>

#### NOTES

- Unused IN and OUT Ports are plugged (typical)
- Supply pressure must be no less than 10 psig, [0.70 BAR], (70 kPa), above maximum output.

#### TEMPORAL SPECIFICATIONS

- **Temp. Range**: 0°F to +160°F (-18°C to +71°C)
**TYPICAL APPLICATION**

The Model T7950 Series transducer controls the gripping pressure of the fingers on a pick-and-place robot. An analog control signal or a DeviceNet™ communication may be used to control the transducer output. The control system contains information about the object the robotic fingers should grasp. The finger pressure is adjusted to grasp and move the object without crushing or dropping it. The External Pneumatic Feedback signal to the Model T7950 ensures that the pressure at the gripper fingers is correct. The Analog Output supplies output pressure value to the control system for increased accuracy.

**MANIFOLD MOUNTING**

Optional manifolds are available to mount 3, 5, 10, or 15 transducers. For more information about manifold mounting, see the *Fairchild Manifold and Rack Kit Catalog, CS-4000MRKT*.

**OPERATION**

For operating instructions, contact the factory.

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**INSTALLATION**

For installation instructions, see the *Model T7950 Series Electro-Pneumatic Transducers Installation Instructions, II-500T7950*.