The Type-900X I/P, E/P transducer converts an electrical signal (current or voltage) to a proportional pneumatic output. Utilizing closed-loop pressure feedback circuitry, it provides precise, stable pressure outputs to final control elements. Immunity to vibration effects or mounting position, high tolerance to impure air, and low air consumption make this unit ideal for demanding applications. The compact housing, accessible ports and easy adjustments make it perfect for constrained spaces. An integral volume booster provides high flow capacity, increasing control speed in critical applications.

**Features**

- **Electronic Closed-loop Feedback**
  Minimizes effects of vibration, mounting position, temperature and supply pressure
- **Compact Size**
  Great for high density mounting
- **Easy Wiring**
  Conduit, terminal block, M12 or DIN 43650 connections
- **Input/Output Ports on Front and Back**
  Provides flexible pneumatic connections
- **Other Features**
  Field selectable outputs (optional), field reversible, RFI/EMI protection, external orifice, supply pressures up to 130 psig
- **Intrinsic Safety Approvals**
  Standard feature for 4-20mA units:
  - Factory Mutual (FM),
  - Canadian Standards Assoc. (CSA)
  Optional feature for 4-20mA units:
  - ATEX
**Principles of Operation**

The heart of this unique technology is a bimorph piezo actuator that is encapsulated in a protective skin. This provides a constant defense against humidity and contaminants often found in process operating environments. The Type-900X utilizes a nozzle to control a pilot pressure to an integral volume booster. The resultant output pressure is measured by a pressure sensor which in turn provides a feedback signal to the circuitry.

The feedback circuit compares this signal to the input signal and self corrects as necessary, thus minimizing the effects of variation in vibration, position, temperature, and supply pressure. The current/voltage signal flows to the piezo actuator causing the actuator to move toward a nozzle. This restricts the flow of air through the nozzle and creates back pressure in the nozzle which acts as a pilot pressure to an integral booster relay.

**Performance Specifications**

| Accuracy, Hysteresis, and Repeatability | ±0.10% of span guaranteed |
| Deadband | 0.02% of span |
| Position Effect | No measurable effect |
| Vibration Effect | Less than ±1.0% of span under the following conditions: 5-15Hz @ 0.8 inches constant displacement; 15-500Hz @ 10g's |
| Supply Pressure Effect | No measurable effect |
| Temperature Effect | ±0.045%/°F (0.07%/°C) of span |
| Reverse Polarity Effect | No damage from reversal of normal supply current (4-20 mA) or from misapplication of up to 60 mA |
| RFI/EMI Effect | Less than 5% of span change in output pressure per En 61000-4-3:1998, Amendment 1, Performance Criterion A |

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**Functional Specifications**

<table>
<thead>
<tr>
<th>Standard Range</th>
<th>High Output Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td>4-20 mA, 0-10 VDC, 1-9 VDC, 0-5 VDC, 1-5 VDC</td>
</tr>
<tr>
<td><strong>Outputs psig (BAR)</strong></td>
<td>1-17 (0.07-1.20)</td>
</tr>
<tr>
<td><strong>Supply Pressure psig (BAR)</strong></td>
<td>22-60 (1.50-4.0)</td>
</tr>
<tr>
<td><strong>Air Consumption</strong></td>
<td>1.5 scfh (0.75 Nl/min) at mid range typical</td>
</tr>
<tr>
<td><strong>Flow Capacity</strong></td>
<td>4.5 scfm (127 Nl/min) at 25 psig (1.7 BAR) supply</td>
</tr>
<tr>
<td><strong>Temperature Limits</strong></td>
<td>Operating: -40° to +158° F (-40° to +70° C)</td>
</tr>
<tr>
<td><strong>Loop Load, I/P Transducer</strong></td>
<td>9.5 VDC @ 20 mA</td>
</tr>
<tr>
<td><strong>Supply Voltage, E/P Transducer</strong></td>
<td>7-30 VDC, less than 3 mA</td>
</tr>
<tr>
<td><strong>Signal Impedance E/P Transducer</strong></td>
<td>10 Kilohms</td>
</tr>
</tbody>
</table>

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*Extended periods of electrical input without supply air pressure may damage unit.

*Zero-based units have slightly higher air consumption.
Applications

The Type 900X is used extensively by professionals who demand maximum performance and reliability when controlling valve actuators, pneumatic valve positioners, air cylinders, clutches, brakes, dampers, louvres, and pumps.

Original equipment applications include:
- Machinery for grinding or polishing
- Automated assembly, conveying, dispensing and web tensioning
- Semiconductor manufacturers
- Food processing
- HVAC, welding, leak testing and painting

Physical Specifications

<table>
<thead>
<tr>
<th>Port Sizes</th>
<th>Pneumatic</th>
<th>1/4” NPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Electric</td>
<td>1/2” NPT</td>
</tr>
<tr>
<td>Media</td>
<td>Clean, dry, oil-free, air-filtered to 40 micron</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Wall, panel, 1.5” or 2” pipe (optional) or DIN rail (optional)</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>NEMA 4X (IP-65) (conduit connection “A” only)</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>Housing</td>
<td>Chromate-treated aluminum with epoxy paint, NEMA 4X (IP65)</td>
</tr>
<tr>
<td></td>
<td>Elastomers</td>
<td>Buna-N</td>
</tr>
<tr>
<td></td>
<td>Trim</td>
<td>Stainless steel, brass, zinc-plated steel</td>
</tr>
<tr>
<td>Weight</td>
<td>13.0 oz (0.4 kg)</td>
<td></td>
</tr>
</tbody>
</table>
Standard Configurations

Electrical Connections

1/2 inch Conduit Connection (A)

Mounting Holes
10-32 UNF-2B X 3/8 Deep
2 Places

22 GA. wire leads
approx. 18” long
pos, neg, grd

In and out ports
1/4-18 NPT
4 places

Back view typical of all units

Options

Terminal Block (T)

DIN 43650 Connector (D)

M12 Connector (M)

Mounting Options

Pipe Mounting-1.5" or 2" Pipe
Order kit # 448-542-005

Panel Mounting

DIN Rail Mounting
Order kit # 445-766-024

Mounting using
(2) #1/4-20
not included

DIN Rail Kit suitable for EN-50035, EN-50045 and EN-50022 Rails
The Type 925 Multifunction Manifold provides a common air supply line to multiple units of our Type 550X and Type 900X I/P, E/P transducers. Manifolds are available to hold 3, 5, 10 or 15 units. Each port features a patented individual shut-off valve that allows safe on-line service or modification with supply pressure on. Individual units may be installed or removed without effecting other units on the manifold. Construction of the manifold is simple and flexible. Connection ports thread easily into the I/P, E/P units.

No additional hardware such as check valves or adapter kits are required. The Type 925 is DIN rail mountable (optional). The Type 925 can also be used as a common output manifold for solenoid valves.

### Dimensional Drawings

![Dimensional Drawings Image]

### Ordering

<table>
<thead>
<tr>
<th>Stations</th>
<th>Length “A” (in.)</th>
<th>Length “B” (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>6.1 (155)</td>
<td>7.13 (181)</td>
</tr>
<tr>
<td>5</td>
<td>9.3 (236)</td>
<td>10.31 (262)</td>
</tr>
<tr>
<td>10</td>
<td>17.3 (439)</td>
<td>18.31 (465)</td>
</tr>
<tr>
<td>15</td>
<td>25.3 (642)</td>
<td>26.30 (668)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type 925 Manifolds</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Unit Manifold Kit</td>
<td>438-544-005</td>
</tr>
<tr>
<td>5 Unit Manifold Kit</td>
<td>438-544-006</td>
</tr>
<tr>
<td>10 Unit Manifold Kit</td>
<td>438-544-007</td>
</tr>
<tr>
<td>15 Unit Manifold Kit</td>
<td>438-544-008</td>
</tr>
</tbody>
</table>

Each kit includes manifold, mounting brackets (2), end cap, 1/2” NPT inlet fitting.

<table>
<thead>
<tr>
<th>Diagram #</th>
<th>Accessories</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/2” Supply Shut-off Valve</td>
<td>445-778-008</td>
</tr>
<tr>
<td>2</td>
<td>1/2” to 1/4” NPT Reducer</td>
<td>445-722-005</td>
</tr>
<tr>
<td>3</td>
<td>Pressure Gauge (1/4” bottom mount, 0-60 psig)</td>
<td>446-725-014</td>
</tr>
<tr>
<td>4</td>
<td>1/4” Shutoff Valve</td>
<td>445-778-009</td>
</tr>
<tr>
<td>5</td>
<td>1/4” Elbow</td>
<td>445-722-004</td>
</tr>
<tr>
<td>6</td>
<td>Extended Mounting Bracket Kit</td>
<td>448-544-009</td>
</tr>
<tr>
<td>7</td>
<td>DIN Rail Mounting Kit</td>
<td>448-542-004</td>
</tr>
</tbody>
</table>
Type 900X Miniature I/P, E/P Transducer for Electronic Air Pressure Control

Performance Characteristics

Hazardous Area Classification

Factory Mutual (FM) & Canadian Standards (CSA) Approvals
Standard feature for 4-20mA units

Intrinsically Safe (1/2" NPT Conduit)
Class I, II, III, Division 1,
Groups C, D, E, F, & G
Enclosure Nema 4X (IP 65)
Temp. Code T4 Ta = 70°C
Rated 4-20 mA, 30 VDC Max.

Intrinsically Safe (DIN & Terminal)
Class I, Division 1, Groups C & D
Temp. Code T4 Ta = 70°C
Rated 4-20 mA, 30 VDC Max.

Entity Parameters (conduit)
U (Vmax) = 30 VDC  Ci = 0 uF
Ii (Imax) = 125 mA  Li = 0 mH
Pi = .7 W Max.

ATEX Approvals (option K)
Ex ia IIB T4
Ex d IIA Gb
Temp. Code T4 Ta = 70°C

Entity Parameters (DIN and Terminal)
U (Vmax) = 30 VDC  Ci = 0.03 uF
Ii (Imax) = 125 mA  Li = 2.2 mH
Pi = .7 W Max.

Ordering
Use this coding system to order

Model 900

Input Signal
A 4-20 mA
C 0-5 VDC
D 1-5 VDC
E 0-10 VDC
F 1-5 VDC

Options
A Field selectable outputs*
(K 0.2% accuracy)
K ATEX Approvals (4-20mA only)
U 1/4" BSP Porting

Electrical Connection
A 1/2" NPT conduit with pigtail
D DIN 43650 connector
M M12 Connector
T Terminal Block

Output psig  BAR

C 3-15  0.20-1.0
D 3-27  0.20-1.8
E 6-30  0.40-2.0
F 1-17  0.07-1.2
G 2-60  0.13-4.1
H 2-100 0.13-6.9
I 0-15  0.00-1.0
J 0-60  0.00-4.1

Accessories
DIN Rail Mounting Kit  Kit # 445-766-024
1.5" or 2" Pipe Mounting Kit  Kit # 448-542-005

*Field selectable option is available only for units with the following outputs:
3-15 psig, 3-27 psig, 6-30 psig.

Flow scfm (m3/hr)

15 (1.0)
12 (0.8)
9 (0.6)
6 (0.4)
3 (0.2)

Output Pressure psig (BAR)

100 psig supply

Flow scfm (m3/hr)

120 psig supply

Flow scfm (m3/hr)

Warranty
ControlAir, Inc. products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir, Inc. recommended usages. ControlAir, Inc.’s liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir, Inc.’s sole option, of any products proved defective. ControlAir, Inc. reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user. Drawing downloads available at www.controlair.com.