ControlAir

Type 900X

Miniature I/P, E/P Transducer for Electronic Air Pressure Control

Closed loop and self-correcting to maintain precise control

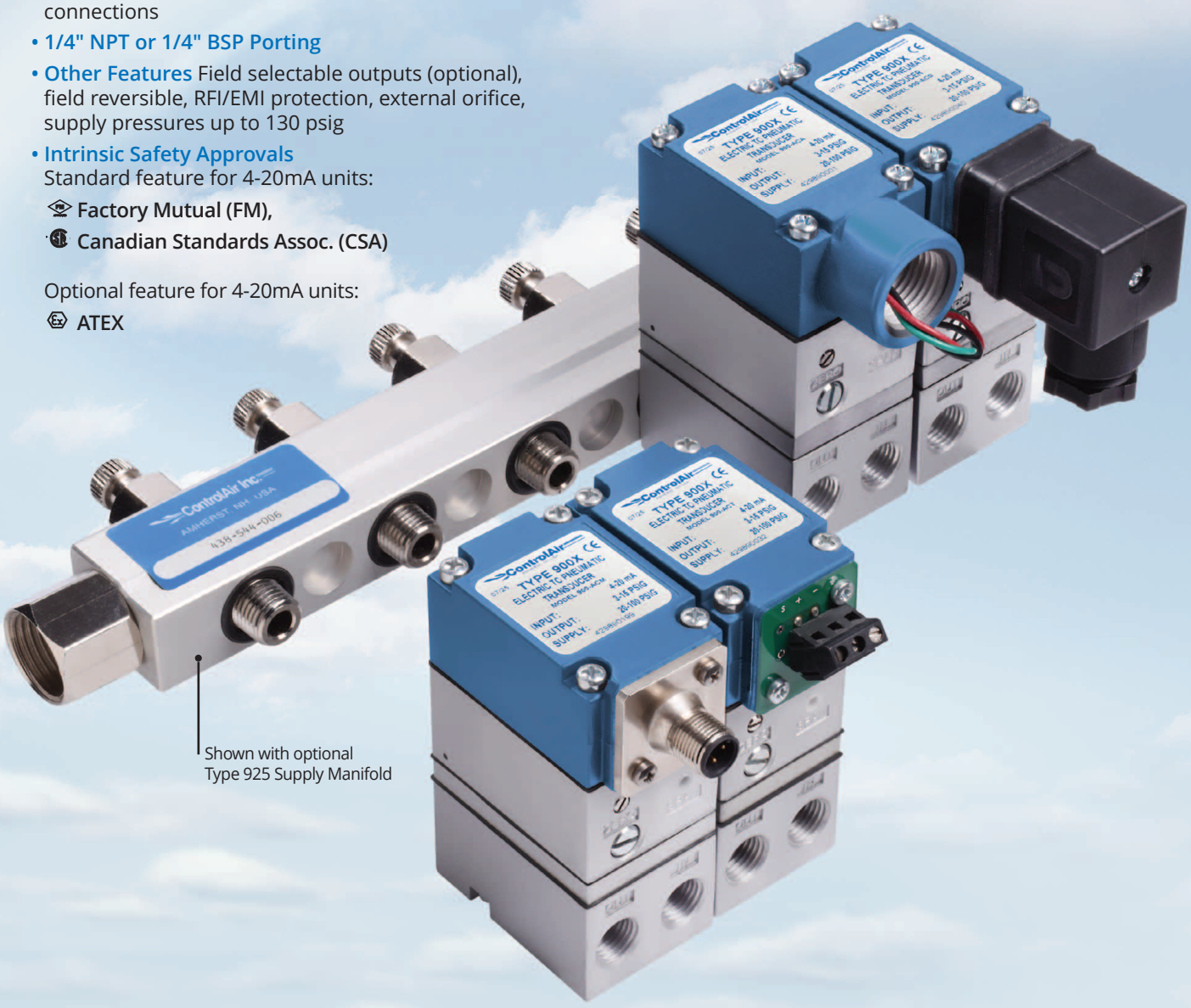
Now with low output ranges

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
- **1/4" NPT or 1/4" BSP Porting**
- **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



Shown with optional Type 925 Supply Manifold

Type 900X Durable, precise control from a variable signal

Functional Specifications

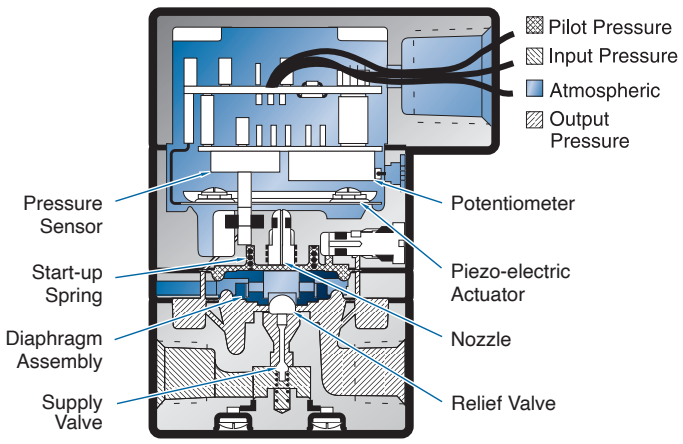
		Standard Range				Low Output Range			High Output Range		
Inputs†		4-20 mA, 0-10VDC, 1-9 VDC, 0-5 VDC, 1-5 VDC									
Outputs	**psig (bar)**	1-17 (0.07-1.20)	3-15 (0.20-1.00)	3-27 (0.20-1.80)	6-30 (0.40-2.00)	0-5 (0.00-0.35)	0-15 (0.00-1.00)	0-30 (0.00-2.00)	2-60 (0.14-4.00)	2-100 (0.14-6.90)	0-60* (0.00-4.00)
Supply Pressure	**psig (bar)**	22-60 (1.50-4.0)	20-100 (1.40-6.90)	32-100 (2.20-6.90)	35-100 (2.40-6.90)	10-30 (0.70-2.1)	25-65 (1.72-4.50)	40-70 (2.75-4.82)	65-100 (4.50-9.00)	105-130 (7.20-9.00)	70-80 (4.82-5.50)
Air Consumption*		1.5 scfh (0.75 Nl/min) at mid range typical							4.5 scfh (2.25 Nl/min) at mid range typical		
Flow Capacity		4.5 scfm (127 Nl/min) at 25 psig (1.7 bar) supply 12.0 scfm (340 Nl/min) at 100 psig (7.0 bar) supply							20.0 scfm (566 Nl/min) at 130 psig (9.0 bar) supply		
Temperature Limits		Operating -40° to +158° F (-40° to +70° C) Storage -40° to +200° F (-40° to +93° C)									
Loop Load, I/P Transducer		9.5 VDC @ 20 mA									
Supply Voltage, E/P Transducer		7-30 VDC, less than 3 mA									
Signal Impedance E/P Transducer		10 Kilohms									

† Extended periods of electrical input without supply air pressure may damage unit.
* Zero-based units have slightly higher air consumption.

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	.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 (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

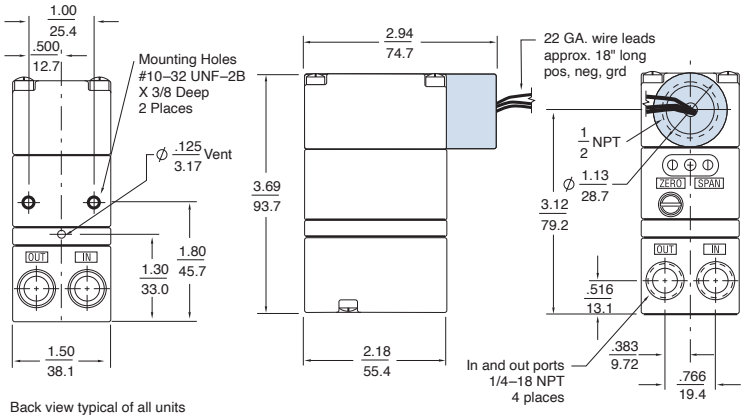
Physical Specifications

Port Sizes	Pneumatic	1/4" NPT
	Electric	1/2" NPT
Media	Clean, dry, oil-free, air-filtered to 40 micron	
Mounting	Wall, panel, 1.5" or 2" pipe (optional) or DIN rail (optional)	
Enclosure	NEMA 4X {IP-65} (conduit connection "A" only)	
Materials	Housing	Chromate-treated aluminum with epoxy paint. NEMA 4X (IP65)
	Elastomers	Buna-N
	Trim	Stainless steel; brass; zinc-plated steel
Weight	13.0 oz (0.4 kg)	

Electrical Connections

Standard Configurations

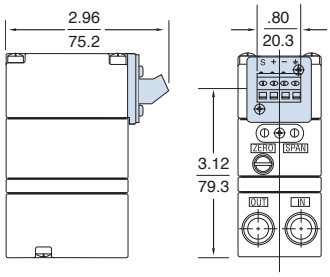
1/2 inch Conduit Connection (A)



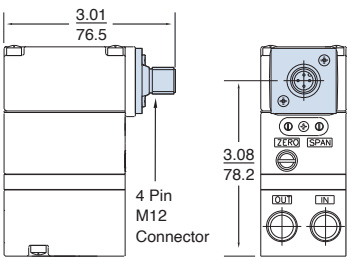
Back view typical of all units

Options

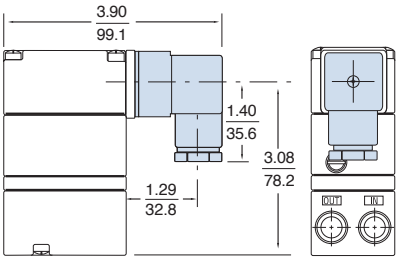
Terminal Block (T)



M12 Connector (M)



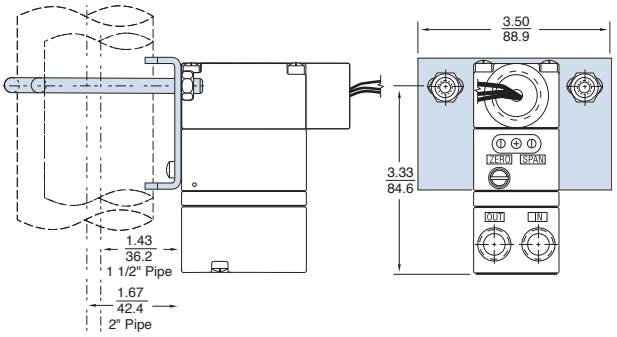
DIN 43650 Connector (D)



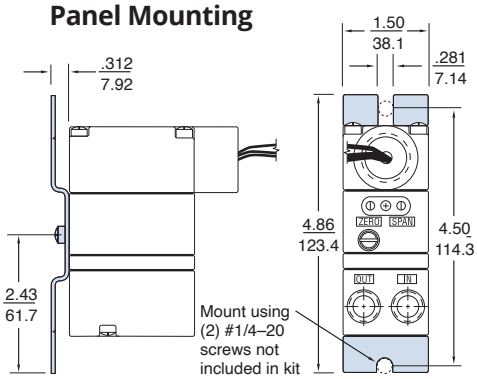
Mounting Options

Pipe Mounting-1.5" or 2" Pipe

Order kit # 448-542-005

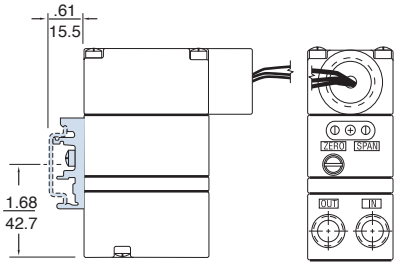


Panel Mounting



DIN Rail Mounting

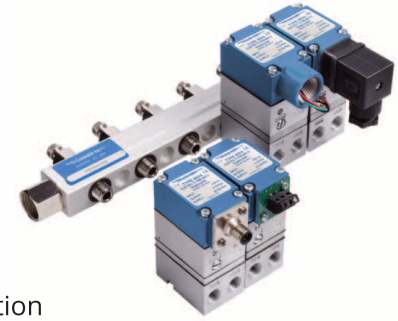
Order kit # 445-766-024



DIN Rail Kit suitable for EN-50035, EN-50045 and EN-50022 Rails

Type 925
Multifunction Supply Manifold

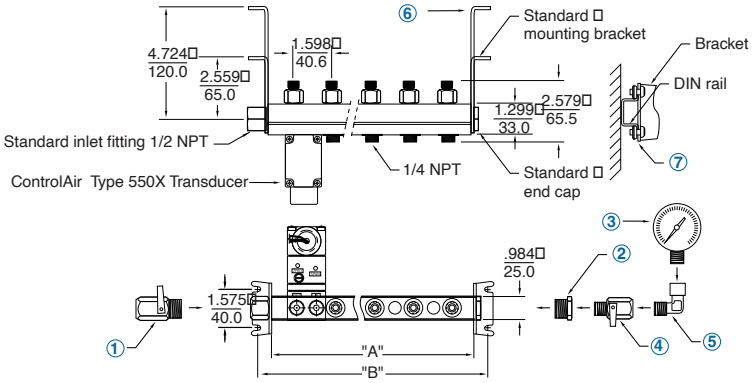
Common supply port with individual shut off valves



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.

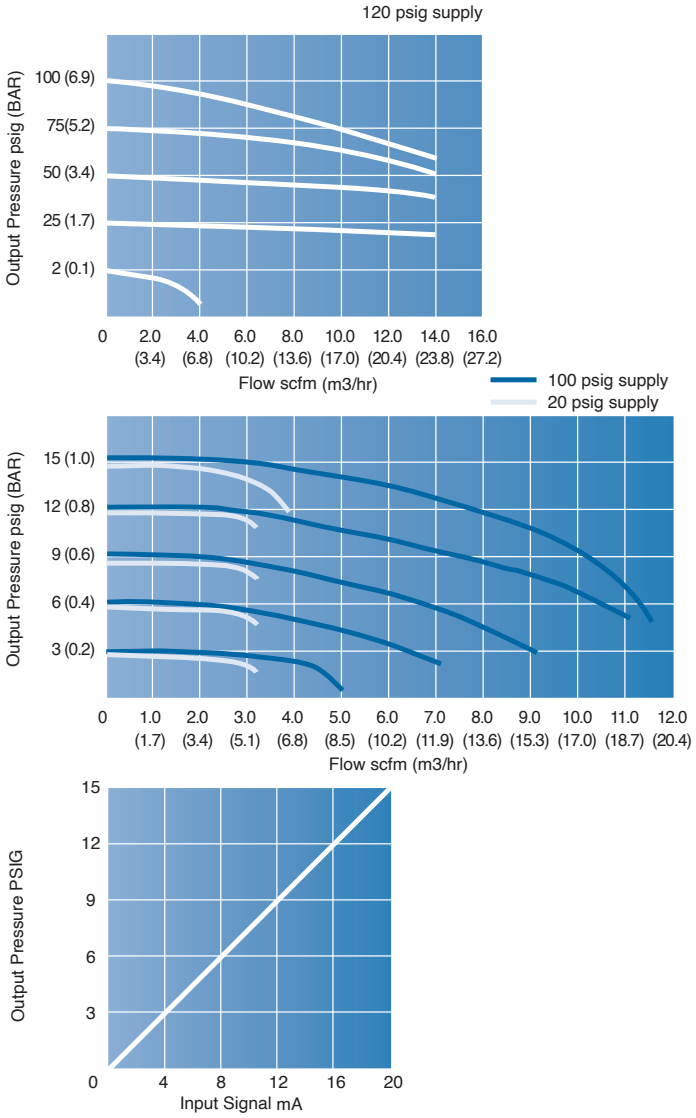
Scan or click code for Spec Sheet

Dimensional Drawings



Type 900X Miniature I/P, E/P Transducer for Electronic Air Pressure Control

Performance Characteristics



Warranty ControlAir, LLC 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, LLC recommended usages. ControlAir, LLC's liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir, LLC's sole option, of any products proved defective. ControlAir, LLC 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.

Ordering Use this coding system to order

Model 900 – [ ] [ ] [ ] [ ]

Input Signal
- **A** 4-20 mA
- **C** 0-5 VDC
- **D** 1-9 VDC
- **E** 0-10 VDC
- **F** 1-5 VDC

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
K	0-5	0.00-0.35**
L	0-15	0.00-1.0
I	0-30	0.00-2.1
J	0-60	0.00-4.1

Electrical Connection
- **A** 1/2" NPT conduit with pigtail
- **D** DIN 43650 connector
- **M** M12 Connector (No agency approvals)
- **T** Terminal Block

Options
- **A** Field selectable outputs* (0.20% accuracy)
- **K** ATEX Approvals (4-20mA only)
- **U** 1/4" BSP Porting

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

** Output "K" is general purpose only. No approvals.

Accessories

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

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)
Ui (Vmax) = 30 VDC Ci = 0 uF
Ii (Imax) = 125 mA Li = 0 m H
Pi = .7 w Max.

ATEX Approvals (option K)
II 1 G Ex ia IIB T4
CE 1725 Tamb = -40° C to +70° C
FM08ATEX0048X

Non-Incendive (Conduit, DIN, Terminal)
Class I, Division 2,
Groups A, B, C & D
Temp. Code T4 Ta = 70° C

Suitable for (Conduit only)
Class II & III, Division 2,
Groups F & G
Temp. Code T4 Ta = 70° C

Entity Parameters (DIN and Terminal)
Ui (Vmax) = 30 VDC Ci = .03 uF
Ii (Imax) = 125 mA Li = 0 mH
Pi = .7 w Max.

Entity Parameters
U: (Vmax) = 30 VDC Ci = 1 uF
I: (Imax) = 125 mA Li = 2.2 mH
Pi = .7 W Max.

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P/N 441-625-014 11/6/26