

Type 550X

Miniature I/P, E/P Transducer

Accurate and economical electronic pressure control

The Type 550X is an electronic pressure regulator that converts a variable signal (current or voltage) to a proportional pneumatic output. Its compact housing, accessible ports and easy adjustments provide an ideal answer to applications that are space-constrained. This economical instrument provides precision air pressure regulation to actuators, valves, positioners and other final control elements. An integral volume booster provides high flow capacity, increasing control speed in critical applications.

Features

- **Compact Size**
Great for high density mounting
- **Easy Wiring**
Conduit, terminal block or DIN 43650 connections
- **Multiple Mounting Options**
Wall, panel, DIN rail, pipe or manifold mounted
- **Input/Output Ports on Front and Back**
Provides flexible pneumatic connections
- **External Zero and Span Adjustments**
Convenient field calibration
- **RoHS**
All versions of the T550X comply with the RoHS directive
- **Intrinsic Safety Approvals**
 - ☞ Factory Mutual (FM)
(4-20mA units only)
 - ☞ Canadian Standards Assoc. (CSA)
 - ☞ ATEX option available



ControlAir Inc.

Type 550X

Compact Housing, Versatile Mounting

Multiple choices for wiring and porting in the Type 550X simplify installation and decrease the time required to do so. In addition to standard wall, panel or pipe mounting, an optional DIN rail kit is available. Also available is the ControlAir Type 925 Multifunction Manifold, which provides a common air supply and individual shutoff valves for sets of 3, 5, 10 or 15 units.

Principles of Operation

The Type 550X I/P, E/P Transducer is a force balance device in which a coil is suspended in a magnetic field by a flexure. Current flowing through the coil generates movement of the flexure. As this assembly moves towards the nozzle, it creates backpressure, which acts as a pilot to an integral booster relay. Input signal increases (or decreases for reverse acting) cause an accurate proportional change in output.

Zero and Span are calibrated by turning adjust screws on the front face of the unit. Adjustment of the zero screw repositions the nozzle relative to the flexure. The span adjustment is a potentiometer that controls the amount of current through the coil.

The zero-based version of the Type 550X incorporates an integral negative bias booster relay. The negative bias allows the unit to provide zero output while the booster section amplifies the pressure to provide outputs up to 120 psig.

The Type 550X Advantage

- **Compact Size** – small footprint permits space saving dense mounting.
- **Input and Output Ports on Both Front and Back** – allows versatile plumbing.
- **Superior Value** – economical startup cost, low air consumption, and reliable performance make the Type 550X a great investment.
- **Choice of Conduit, DIN 43650 or Terminal Block Electrical Connection** – makes wiring convenient.
- **Modular Construction** – multiple mounting configurations provide installation versatility.
- **NEMA 4X / IP65 Housing** – good for indoor or outdoor use. (Conduit connection “A” only)
- **High Flow Capacity** – delivers quick actuation of dampers, louvers, valves and cylinders.
- **Other Features** – Reverse Acting Operation, RFI/EMI Protection, External Zero and Span Adjustments, Accessible Orifice.

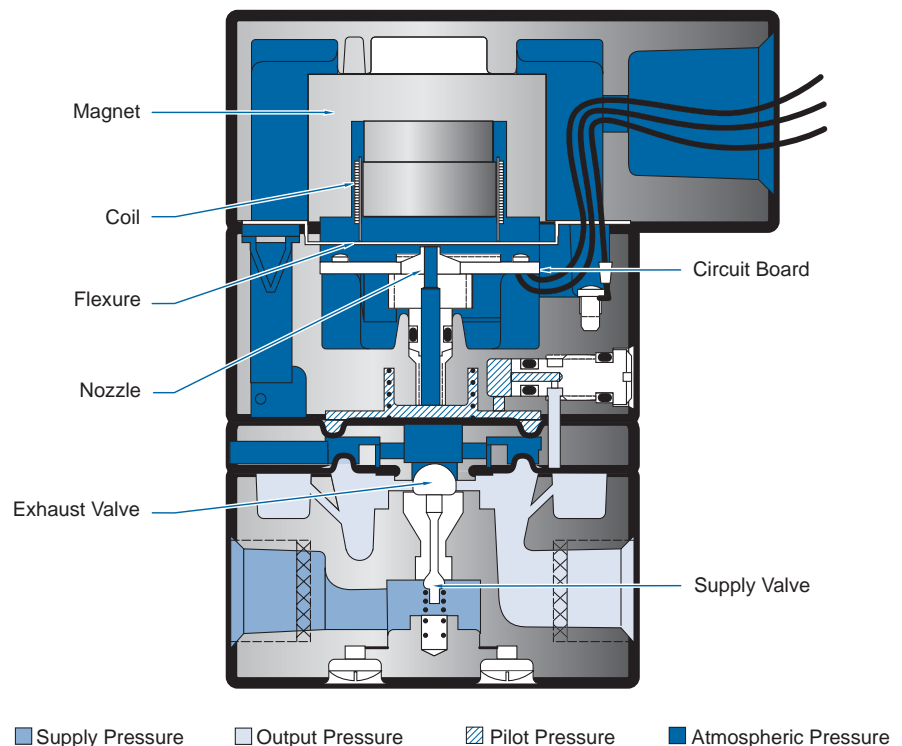


Diagram of the Type 550X shown actual size



Functional Specifications

	Standard Range			High Output Range			Zero-Based Range			
Inputs	4-20 mA 0-5 VDC, 0-10 VDC, 1-5 VDC, 1-9 VDC									
Outputs psig (BAR)	3-15 (0.2-1.0)	3-27 (0.2-1.8)	6-30 (0.4-2.0)	2-60 (0.14-4.0)	3-120 (0.2-8.0)	0-30 (0.0-2.0)	0-60 (0.0-4.0)	0-120 (0.0-8.0)		
Supply Pressure psig (BAR)	20-100 (1.4-6.9)	32-100 (2.2-6.9)	35-100 (2.4-6.9)	65-150 (4.5-10.0)	125-150 (8.6-10.0)	35-100 (2.4-6.9)	65-150 (4.5-10.0)	125-150 (8.6-10.0)		
Air Consumption	1.8 scfh (0.05 m3/hr) at mid range typical					6.0 scfh (0.17 m3/hr) at mid range typical				
Flow Capacity	4.5 scfm (7.7 m3/hr) at 25 psig (1.7 BAR)			12.0 scfm (20.0 m3/hr) at 100 psig (6.9 BAR)	20.0 scfm (34.0 m3/hr) at 150 psig (10.0 BAR)	12.0 scfm (20.0 m3/hr) at 100 psig (6.9 BAR)				
	12.0 scfm (20.0 m3/hr) at 100 psig (6.9 BAR)					20.0 scfm (34.0 m3/hr) at 150 psig (10.0 BAR)				
Temperature Limits	-20° to +150° F (-30° to +65° C)									
Impedance	4-20 mA 180 Ohms 0-5 VDC 615 Ohms 0-10 VDC 1230 Ohms 1-5 VDC 495 Ohms 1-9 VDC 985 Ohms	4-20 mA 240 Ohms 0-5 VDC 550 Ohms 0-10 VDC 1100 Ohms 1-5 VDC 440 Ohms 1-9 VDC 880 Ohms	4-20 mA 240 Ohms 0-5 VDC 550 Ohms 0-10 VDC 1100 Ohms 1-5 VDC 440 Ohms 1-9 VDC 880 Ohms	4-20 mA 245 Ohms 0-5 VDC 520 Ohms 0-10 VDC 1040 Ohms 1-5 VDC 495 Ohms 1-9 VDC 900 Ohms	4-20 mA 280 Ohms 0-5 VDC 500 Ohms 0-10 VDC 1000 Ohms 1-5 VDC 475 Ohms 1-9 VDC 880 Ohms	4-20 mA 290 Ohms 0-5 VDC 450 Ohms 0-10 VDC 900 Ohms 1-5 VDC 410 Ohms 1-9 VDC 830 Ohms	4-20 mA 300 Ohms 0-5 VDC 480 Ohms 0-10 VDC 960 Ohms 1-5 VDC 460 Ohms 1-9 VDC 800 Ohms	4-20 mA 315 Ohms 0-5 VDC 495 Ohms 0-10 VDC 990 Ohms 1-5 VDC 455 Ohms 1-9 VDC 785 Ohms		

Performance Specifications

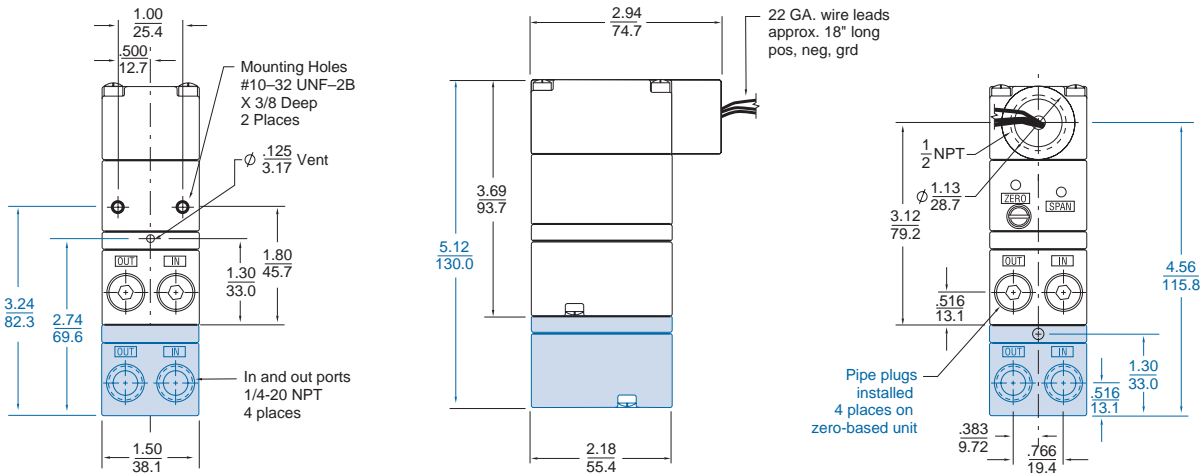
Linearity (Independent)	<±0.5% of span	<±2.0% of span	<±1.5% of span
Hysteresis, & Repeatability	<0.5% of span		<1.0% of span
Supply Pressure Sensitivity	<0.1% of span per 1.0 psig (0.07 BAR)	<0.4% of span per 1.0 psig (0.07 BAR)	<0.02% of span per 1.0 psig (0.07 BAR)
RFI/EMI Effect	Less than .5% of span change in output pressure per En 61000-4-3:1998, Amendment 1, Performance Criterion A		

Type 550X

Dimensional Drawings

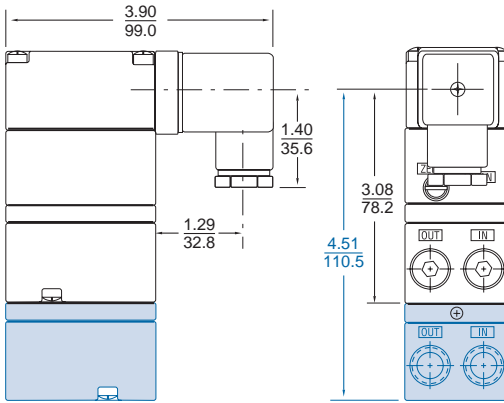
Blue areas and dimensions apply to the zero-based unit only

1/2 inch Conduit Connection (A)



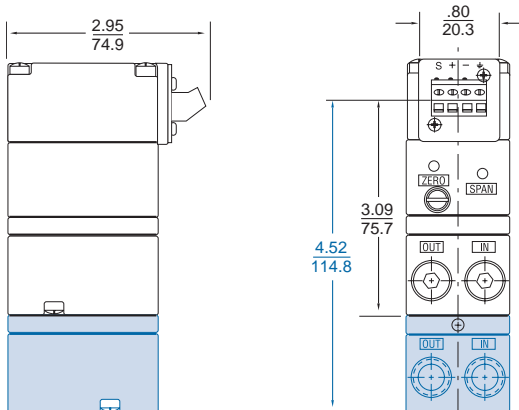
DIN 43650 Connector (D)

Blue areas and dimensions apply to the zero-based unit only



Terminal Block (T)

Blue areas and dimensions apply to the zero-based unit only

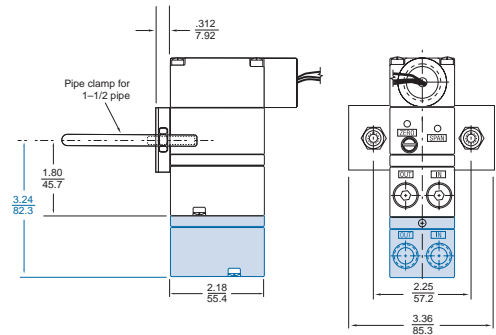


Mounting Options

Pipe Mounting

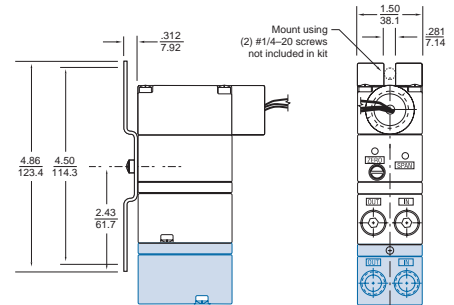
Kit # 448-452-005

Blue areas and dimensions apply to the zero-based unit only



Panel Mounting

Blue areas and dimensions apply to the zero-based unit only

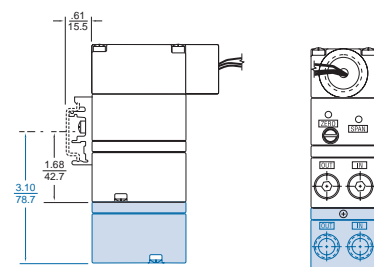


DIN Rail Mounting

Kit # 445-766-024

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

Blue areas and dimensions apply to the zero-based unit only



Type 925

Multifunction Supply Manifold

A 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.

Manifolds are available to hold 3, 5, 10 or 15 units. Each station 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.

Ordering Information

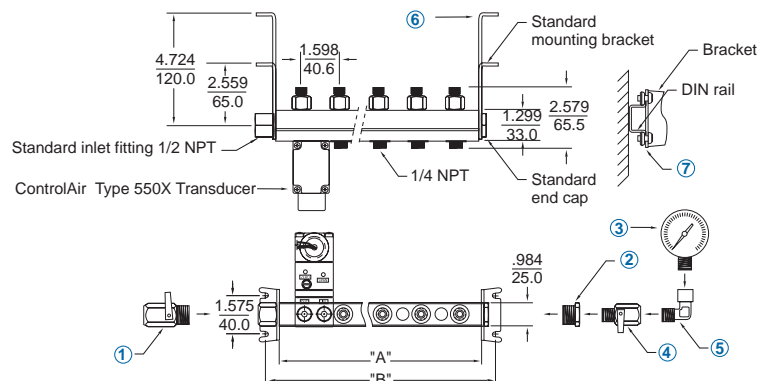
Type 925 Manifolds	Part Number
3 Unit Manifold Kit	438-544-005
5 Unit Manifold Kit	438-544-006
10 Unit Manifold Kit	438-544-007
15 Unit Manifold Kit	438-544-008

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

Accessories

Diagram #		Part Number
1	1/2" Supply Shut-off Valve	445-778-008
2	1/2" to 1/4" NPT Reducer	445-722-005
3	Pressure Gauge (1/4" bottom mount, 0-60 psig)	446-725-014
3	Pressure Gauge (1/4" bottom mount, 0-160 psig)	446-725-015
4	1/4" Shut-off Valve	445-778-009
5	1/4" Elbow	445-722-004
6	Extended Mounting Bracket Kit (includes both brackets)	448-544-009
7	DIN Rail Mounting Kit	448-542-004

Dimensional Drawings



Stations	Length "A"		Length "B"	
	in.	(mm)	in.	(mm)
3	6.1	(155)	7.13	(181)
5	9.3	(236)	10.31	(262)
10	17.3	(439)	18.31	(465)
15	25.3	(642)	26.30	(668)

Type 550X

Physical Specifications

Type 550X

Ordering Information

Port Sizes	Pneumatic	1/4" NPT
Media	Clean, dry, oil-free, instrument air, filtered to 40 micron	
Electrical Connections	Conduit 1/2" NPT, Terminal Block, DIN 43650	
Mounting	Direct wall, panel, 1 1/2" pipe, DIN rail or Manifold	
Materials	Housing	Chromate-treated aluminum with epoxy paint.
	Elastomers	Buna-N
	Trim	Stainless steel; brass; zinc-plated steel
Weight	Standard Unit: 1.3 lbs Zero-based Unit: 1.7 lbs	
Enclosure	NEMA 4X/IP65 (Conduit Connection "A" only)	

Hazardous Area Classifications

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.

ATEX Approvals (option K)

Ⓜ II 1 G EEx ia IIB T4
Tamb = -30° C to +70° C

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

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

Entity Parameters

U: (Vmax) = 30 VDC Ci = 0 uF
I: (Imax) = 125 mA Li = 0 mH
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Classification

EC Declaration of Conformity

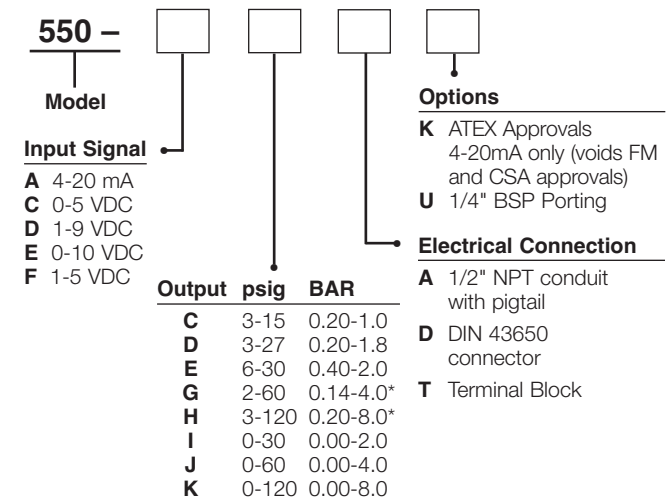
We, ControlAir, Inc.
8 Columbia Drive
Amherst, NH 03031

Declare that the Type 550X Transducer family to which this declaration applies, comply with these standards:

EN 50082-1:1998
EN 55011:1999
EN 61010-1:1993 including AMD2:1995

Following the provisions of EMC directive 89/336/EEC

Use this coding system to order



Output shown is calibrated at the factory. Large span adjustment capability allows recalibration to achieve output ranges from 3-35 psig (0.2-2.4 BAR) with 2-60 psig unit, and up to 3-145 psig (0.2-10.0 BAR) with 3-120 psig unit.

Accessories

DIN rail mounting kit
Kit # 445-766-024

1.5" or 2" pipe mounting kit
Kit # 448-542-005

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



8 Columbia Drive / Amherst, NH 03031 USA
Website: www.controlair.com
Email: sales@controlair.com
603-886-9400 FAX 603-889-1844

