

# 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, M12 or DIN 43650 connections
- **Mounting Options**  
Wall, panel, DIN rail, pipe or manifold mounted (Type-925)
- **Input/Output Ports on Front and Back**  
Provides flexible pneumatic connections
- **External Zero and Span Adjustments**  
Convenient field calibration
- **Field Reversible Capability**  
Output is inversely proportional to input signal
- **Intrinsic Safety Approvals**
  - ◀ Factory Mutual (FM)
  - Ⓢ Canadian Standards Assoc. (CSA)
  - Ⓜ ATEX (option)



**ControlAir Inc.**

# Type 550X

# Compact Housing, Versatile Mounting



## Functional Specifications

	Standard Range			High Output Range			Zero-Based Range			
<b>Inputs</b>	4-20 mA 0-5 VDC, 0-10 VDC, 1-5 VDC, 1-9 VDC									
<b>Outputs</b> 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)		
<b>Supply Pressure</b> 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)		
<b>Air Consumption</b>	1.8 scfh (0.05 m3/hr) at mid range typical					6.0 scfh (0.17 m3/hr) at mid range typical				
<b>Flow Capacity</b>	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)	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)				
<b>Temperature Limits</b>	-40° to +158° F (-40° to +70° C)									
<b>Impedance</b>	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

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

## Physical Specifications

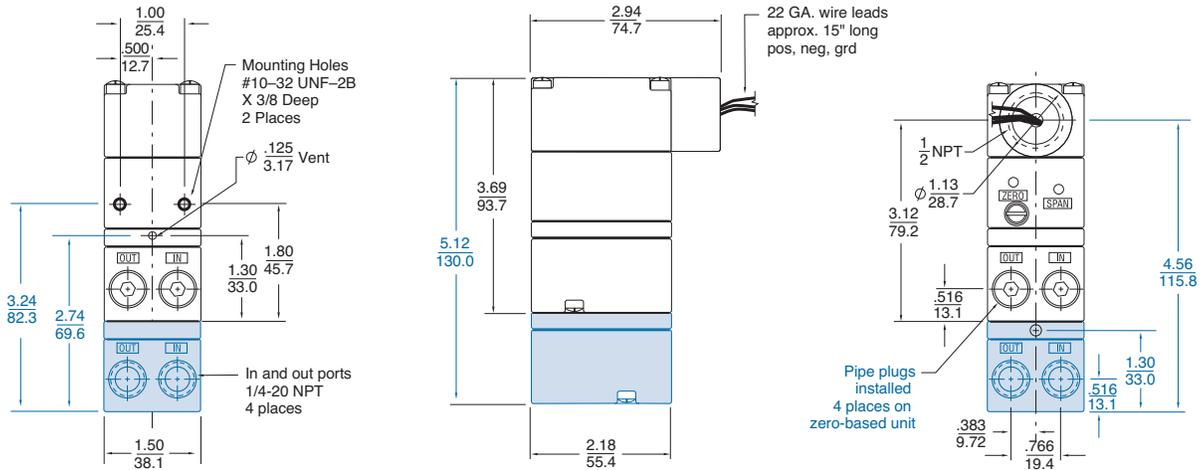
<b>Port Sizes</b>	Pneumatic 1/4" NPT, 1/4" BSP
<b>Media</b>	Clean, dry, oil-free, instrument air, filtered to 40 micron
<b>Electrical Connections</b>	Conduit 1/2" NPT (A), Terminal Block (T), DIN 43650 (D), M12 (M)
<b>Mounting</b>	Direct wall, panel, 1 1/2" pipe, DIN rail or manifold (see Type-925 catalog)
<b>Materials</b>	Housing: Chromate-treated aluminum with epoxy paint. Elastomers: Buna-N Trim: Stainless steel; brass; zinc-plated steel
<b>Weight</b>	Standard Unit: 1.3 lbs (.60 kg) Zero-based Unit: 1.7 lbs (.77 kg)
<b>Enclosure</b>	NEMA 4X/IP65 (Conduit Connection "A" only)

# Type 550X

# Dimensional Drawings

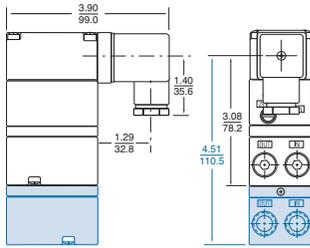
## 1/2 inch Conduit Connection (A)

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



## DIN 43650 Connector (D)

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

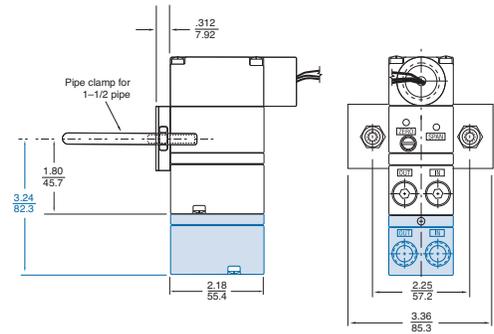


## Mounting Options

### Pipe Mounting

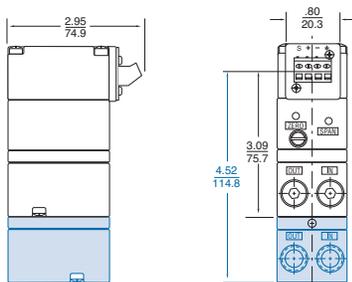
Kit # 448-542-005

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



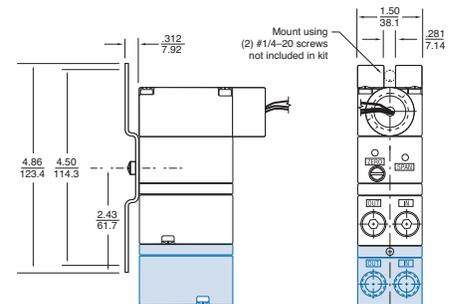
## Terminal Block (T)

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



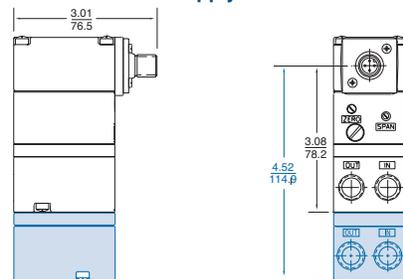
### Panel Mounting

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



## M12 Connector (M)

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

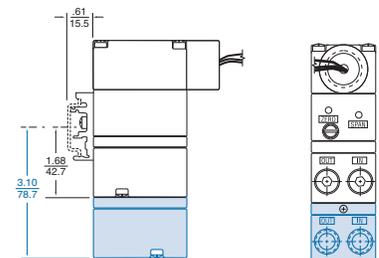


### DIN Rail Mounting

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



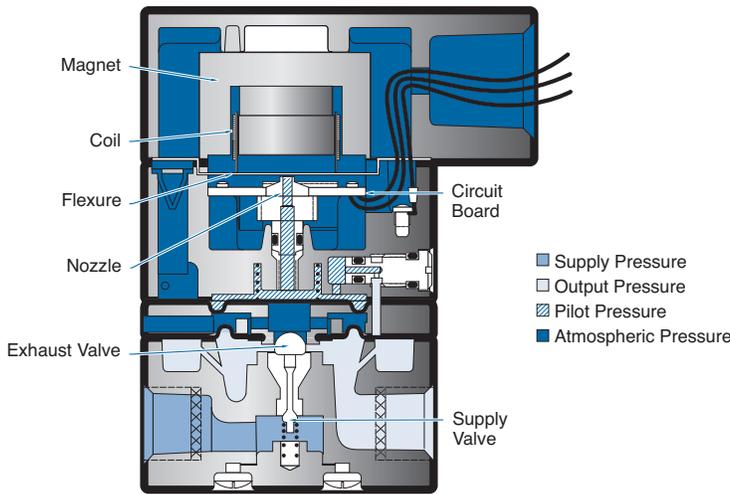
# Type 550X

# Principles of Operation

# Type 550X

# Ordering Information

Use this coding system to order



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.

## 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 Ex ia IIB T4  
Tamb = -40° 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)

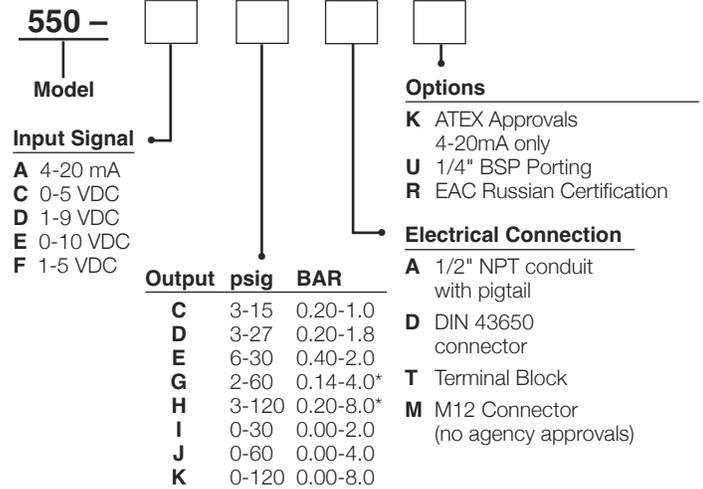
Class II & III, Division 2,  
Groups F & G  
Temp. Code T4 Ta = 70° C

#### 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  
Pi = .7 W Max.



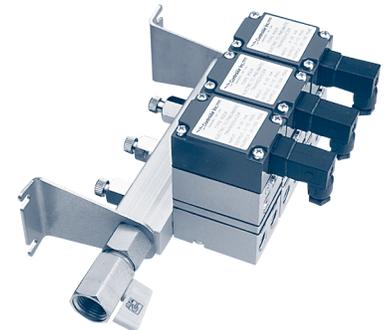
\*Output shown is as calibrated at the factory. Large span adjustment capability allows recalibration to achieve output ranges down to 3-35 psig (0.2-2.4 BAR) with 2-60 psig unit, and up to 3-145 psig (0.2-10.0 BAR) with 3-120 psig unit.

### Accessories

DIN rail mounting kit  
Kit # 445-766-024

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

Type-925 Multifunction  
Supply Manifold



### 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



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