Type 550X

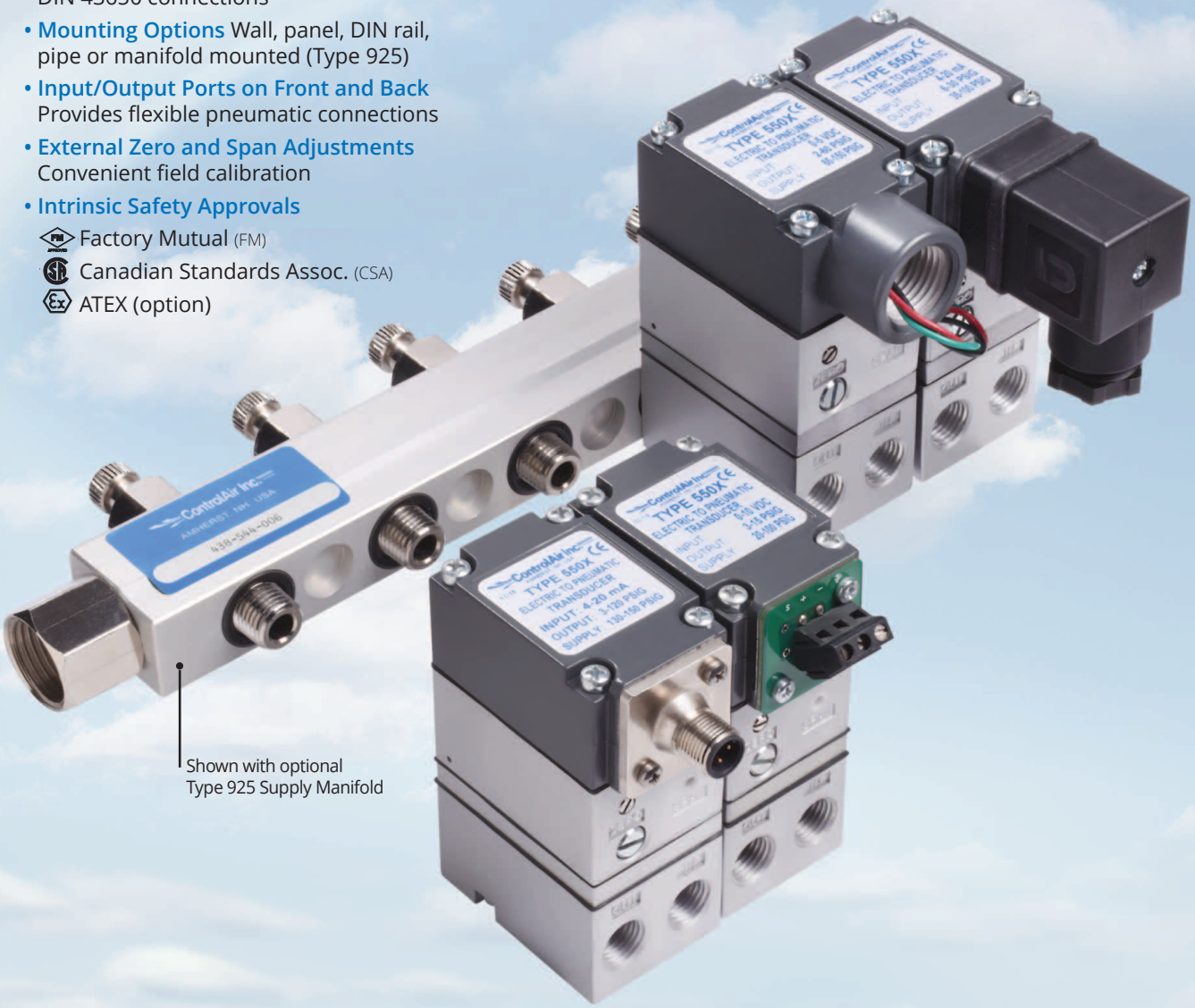
Miniature I/P, E/P Transducer

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
- **Intrinsic Safety Approvals**
  - Factory Mutual (FM)
  - Canadian Standards Assoc. (CSA)
  - ATEX (option)



Shown with optional
Type 925 Supply Manifold

Type 550X Compact housing, versatile mounting

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	12.0 scfm (339.6 Nl/min) at 100 psig (6.9 bar) supply			12.0 scfm (339.6 Nl/min) at 100 psig (6.9 bar) supply	20.0 scfm (566 Nl/min) at 150 psig (10.0 bar) supply	12.0 scfm (339.6 Nl/min) at 100 psig (6.9 bar) supply 20.0 scfm (566 Nl/min) at 150 psig (10.0 bar) supply		
Temperature Limits	-40° to +158° F (-40° to +70° 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		

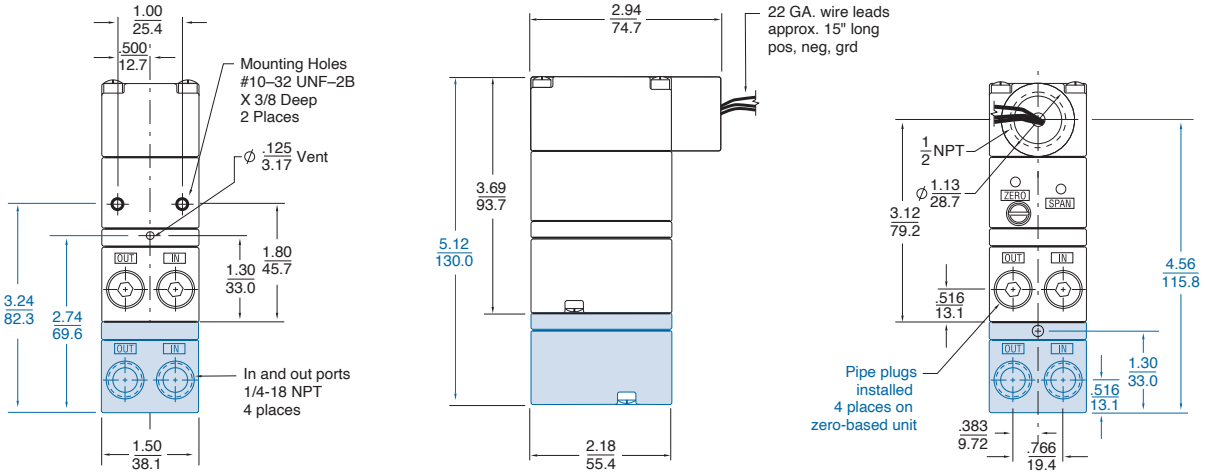
Physical Specifications

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

Dimensional Drawings

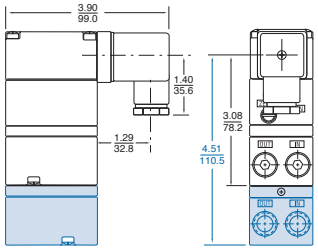
1/2 inch Conduit Connection (A)

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



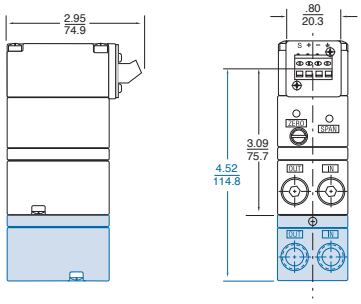
DIN 43650 Connector (D)

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



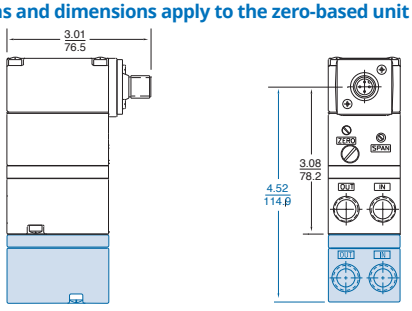
Terminal Block (T)

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

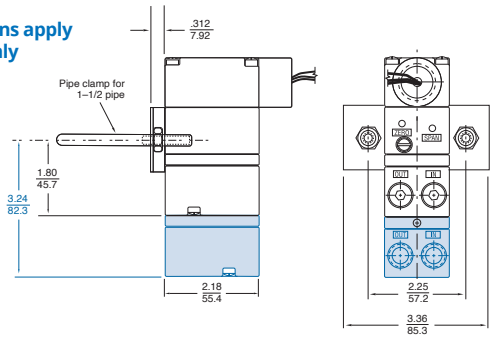


Mounting Options

Pipe Mounting

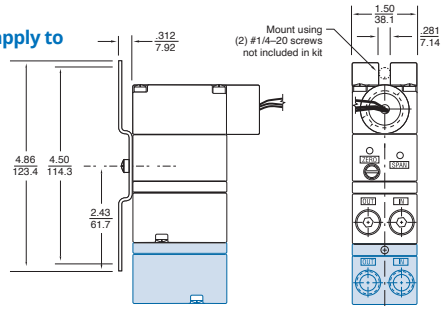
Kit #448-542-005

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

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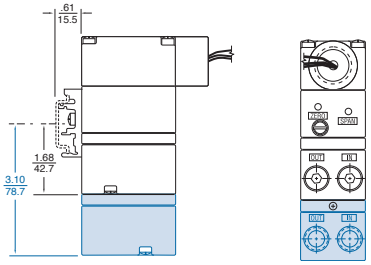
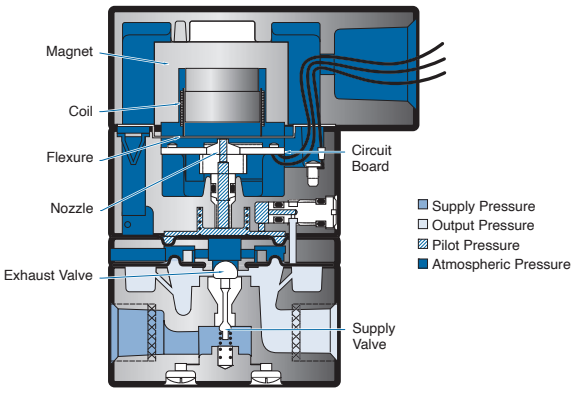


Type 550X Miniature I/P, E/P Transducer

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 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.

Ordering Use this coding system to order

Model
550 – [ ] [ ] [ ] [ ]

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
G	2-60	0.14-4.0
H	3-120	0.20-8.0
I	0-30	0.00-2.0
J	0-60	0.00-4.0
K	0-120	0.00-8.0

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

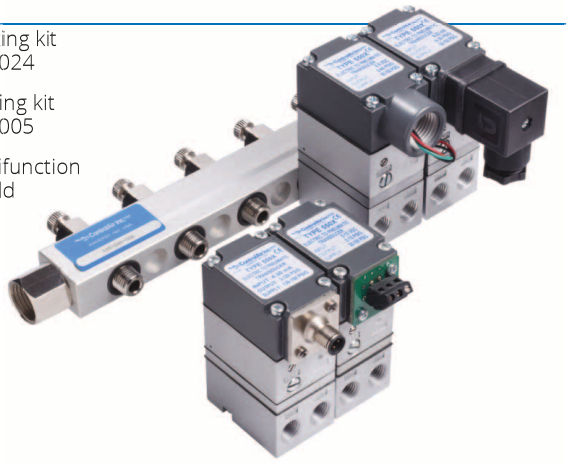
Options
- **K** ATEX Approvals (4-20 mA only)
- **U** 1/4" BSP Porting
- **R** EAC Russian Certification

Accessories

DIN rail mounting kit
Kit # 445-766-024

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

Type 925 Multifunction Supply Manifold
(see Type 925 specification sheet for ordering)



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.

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 m H
Pi = .7 w Max.

Entity Parameters
U: (Vmax) = 30 Vdc Ci = 0 uF
I: (Imax) = 125 mA Li = 0 mH
Pi = .7 W Max.

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

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P/N 441-625-033 10/1/20