



Type 500X

Electropneumatic Transducer (I/P, E/P)

Economical and reliable electrical conversion to pressure

The ControlAir Type 500X converts a current or voltage input signal to a linearly proportional pneumatic output pressure. This versatile instrument is designed for control applications that require a high degree of reliability and repeatability at an economical cost. Optional NEMA 4X (IP65) version allows for splashdown and outdoor installation. Typically, these units are used for applications that require the operation of valve actuators, pneumatic valve positioners, damper and louver actuators, final control elements, relays, air cylinders, web tensioners, clutches, and brakes. Industries that utilize the Type 500X include Petrochemical, HVAC, Energy Management, Textile, Paper, Paper Converting, Food and Drug.

Features

- Low Cost
- Integral Volume Booster
- Compact Size
- Low Air Consumption
- Flexible Zero & Span Adjustments
- Standard Process Inputs
- Split Ranging



Type 500X Low Cost. Compact. Reliable.

The Type 500X is available in two different versions. The lower range model is designed for standard process control applications which typically utilize a 3 to 15 psig output. The extended range unit provides up to 120 psig output for higher pressure industrial pneumatic and process control system requirements.

Principle of Operation

The Type 500X Transducer is a force balance device in which a coil is suspended in the field of a magnet by a flexure. Current flowing through the coil generates axial movement of the coil and flexure. The flexure moves towards the nozzle and creates back pressure which acts as a pilot pressure to an integral booster relay. Input signal increases (or decreases for reverse acting) cause proportional output pressure increases.

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.

NEMA-4X (IP65) Enclosure

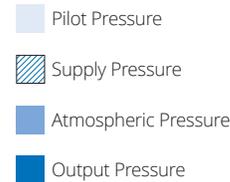
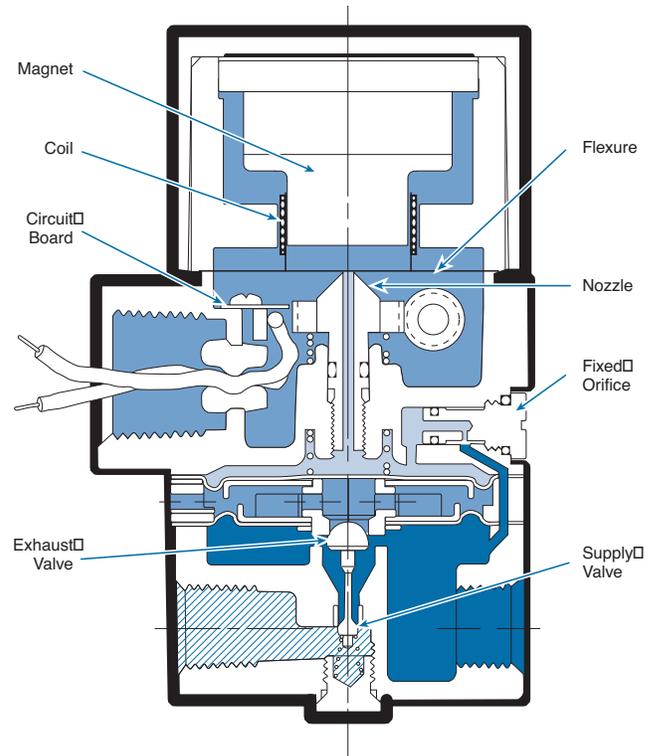
Optional Factory Mutual NEMA 4X enclosure rating allows for installation in splashdown or outdoor environments. Unit also meets the requirements of IEC standards IP65. Conduit connection only.

Mounting

The Type 500X may be mounted by pipe, panel, or bracket. Field adjustment of the zero may be required if position is changed. High external vibration may cause output fluctuations. Mounting in a vibration-free area is recommended.

Split Ranging

If split ranging is required the 4-20 mA input, 3-15 psig output version (ControlAir part number 500-AC) can be recalibrated to provide a 3-9 psig or 9-15 psig output.



Hazardous Area Classification

Factory Mutual (FM) Approval

Standard feature for 4-20mA units

Intrinsically Safe (1/2" NPT Conduit)

Class I, II, III, Division 1,
Groups C, D, E, F, & G
Temp. Code T4 Ta = 60° C
Rated 4-20 mA, 30 VDC Max.

Intrinsically Safe (DIN)

Class I Division 1,
Groups C & D
Rated 4-20 mA, 30 VDC Max.

Entity Parameters

Vmax = 30 Vdc Ci = 0 uF
Imax = 125 mA Li = 35 mH

Non-Incendive (Conduit & DIN)

Class I, Division 2,
Groups A, B, C & D
Enclosure Nema 4X (IP 65)
Temp. Code T4 Ta = 60° C

Suitable for (Conduit only)

Class II & III, Division 1 & 2,
Groups F & G

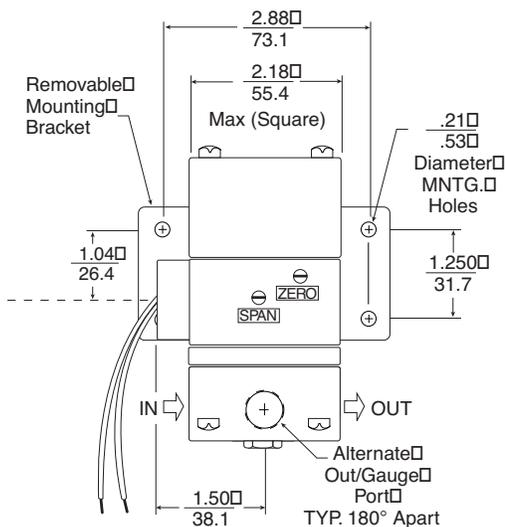
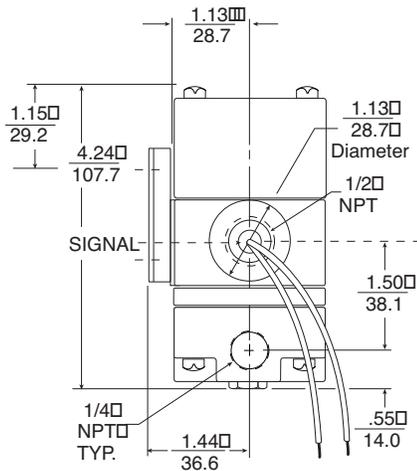
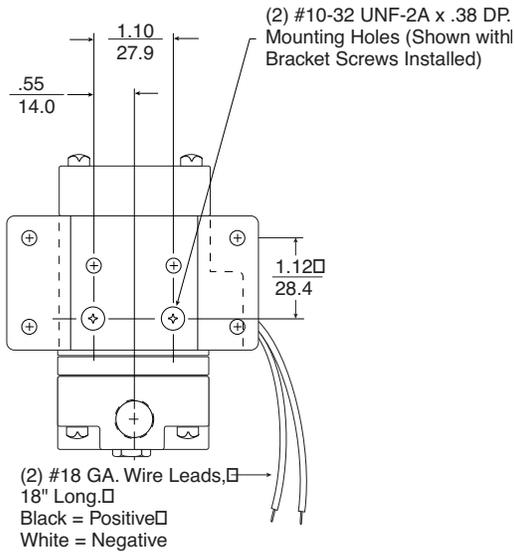
- Low air consumption
- Compact size
- Standard process inputs
- Flexible zero and span adjustments
- Integral volume booter
- Split ranging



Specifications

	Low Output Range (Up To 30 Psig)	High Output Range (Up To 120 Psig)
Min./Max. Supply Pressure	Minimum - 3 psig (.21 bar) above maximum output Maximum - 100 psig (7 bar)	Minimum - 5 psig (0.35 bar) above maximum output Maximum - 150 psig (10.5 bar)
Supply Pressure Sensitivity	<± 0.1% of span per psig (<± 0.15% of span per 0.1 bar)	<± .04% of span per 1.0 psig (0.07 bar)
Terminal Based Linearity	<± 0.75% of span	<± 1.5% of span typical, ± 2.0% max.
Repeatability	< 0.5% of span < 0.5% of span	
Hysteresis	< 1.0% of span < 0.5% of span	
Response Time	Dependent on pressure range - typically less than 0.25 sec for 3-15 psig units	
Flow Rate	4.5 scfm (7.6 m3/hr ANR) at 25 psig (1.7 bar) supply	20.0 scfm (34.0 m3/hr) at 150 psig (10.5 bar) supply
Maximum Air Consumption	12.0 scfm (20.0 m3/hr ANR) at 100 psig (6.8 bar) supply	.07 scfm (.14 m3/hr) midrange typical
Media	.05 scfm (.07 m3/hr) midrange typical	
Electrical Connections	Oil free, clean dry air filtered to 40 micron	
Enclosure	Conduit 1/2" NPT (standard); DIN 43650 (optional)	
Temp. Range (Operating)	Nema 1 (standard); Nema 4X(IP65) (optional)	
Port Sizes	-20°F to +140°F (-30°C to 60°C)	
Relief Capacity	1/4 NPT (Pneumatic) 1/2 NPT (Electric)	1/4 NPT (Pneumatic) 1/2 NPT (Electric)
Weight	2 scfm (3.4 m3/hr) at 5 psig (2.4 bar) above 20 psig (1.3 bar) setpoint	7 scfm (11.9 m3/hr) at 10 psig (0.7 bar) above 20 psig (1.3 bar) setpoint
	2.1 lbs. (0.94 kg)	2.1 lbs. (0.94 kg)

Type 500 Electropneumatic Transducer (I/P, E/P)



Ordering

Type 500X I/P Transducers

Part Number	Input	Output Range		Impedance
		psi	bar	
500-AA	4-20 mA	3-9	0.2-0.6	90 Ohms
500-AB	4-20 mA	9-15	0.6-1.0	90 Ohms
500-AC	4-20 mA	3-15	0.2-1.0	180 Ohms
500-AD	4-20 mA	3-27	0.2-1.8	220 Ohms
500-AE	4-20 mA	6-30	0.4-2.0	220 Ohms
500-AF	4-20 mA	1-17	0.1-1.2	250 Ohms
500-BC	10-50 mA	3-15	0.2-1.0	70 Ohms
500-BD	10-50 mA	3-27	0.2-1.8	85 Ohms
500-BE	10-50 mA	6-30	0.4-2.0	85 Ohms
500-AG	4-20 mA	2-60*	0.14-4.1	225 Ohms
500-AH	4-20 mA	3-120*	0.2-8.2	260 Ohms
500-BF	0-60 mA	2-120*	0.15-8.2	220 Ohms

Type 500X E/P Transducers

Part Number	Input	Output Range		Impedance
		psi	bar	
500-CC	0-5 VDC	3-15	0.2-1.0	615 Ohms
500-CD	0-5 VDC	3-27	0.2-1.8	530 Ohms
500-CE	0-5 VDC	6-30	0.4-2.0	530 Ohms
500-DC	1-9 VDC	3-15	0.2-1.0	985 Ohms
500-DD	1-9 VDC	3-27	0.2-1.8	840 Ohms
500-DE	1-9 VDC	6-30	0.4-2.0	840 Ohms
500-CF	0-5 VDC	2-60*	0.14-4.1	500 Ohms
500-EH	0-10 VDC	3-120*	0.2-8.2	805 Ohms

*Output shown is as 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 to 3-145 psig (0.2-10 bar) with 2-120 psig unit.

Options/Accessories Add proper letter at end of model number.

- D** - Din Connector: DIN 43650 Connector provided mounted to unit. Orients in 4 directions.
 - W** - NEMA 4X: Enclosures for splashdown/outdoor use. Conduit connection only.
 - U** - 1/4" BSP: 1/4" BSP porting.
 - G** - Pressure Gauge: 2" face, back mounted. Dual scale. 0-15 PSI, 0-30 PSI, 0-60 PSI, 0-160 PSI
- Note: Options D and W cannot be combined.

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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