

OPERATES:

- * VALVE ACTUATORS
- * DAMPER & LOUVER ACTUATORS
- * VALVE POSITIONERS
- * CONTROLLERS
- * RELAYS
- * AIR CYLINDERS
- * CLUTCHES & BRAKES

APPLICATIONS:

- * LIQUID & GAS PROCESSING
- * HVAC
- * PAPER HANDLING CONTROLS
- * TEXTILE PROCESSING
- * ENERGY MANAGEMENT
- * PETROCHEMICAL PROCESSING

GENERAL DESCRIPTION

The 18-1000 Transducer is an electro-pneumatic device that reduces a supply pressure to a regulated output pressure that is directly proportional to an electrical input signal. It uses a wide supply pressure range between 125 and 700 kPa (18-100 psig), and is small in size with low air consumption. An integral pneumatic volume booster is included in the design to provide high flow capacity (up to 12 SCFM).

PRINCIPLE OF OPERATION

The 18-1000 Transducer is a force balance device in which a coil is suspended in the field of a magnet by a flexure. The flexure moves against the end of a nozzle, and creates a back pressure in the nozzle by restricting air flow through it. This back pressure acts as a pilot pressure to an integral booster relay. Consequently, as the input signal increases (or decreases, for reverse acting), output pressure increases proportionally. Zero and span are calibrated by turning easily accessible adjusting screws on the front face of the unit. The zero adjusting screw causes the nozzle to move relative to the flexure. The span adjusting screw



is a potentiometer that limits the current through the coil. A thermistor circuit in series with the coil provides temperature compensation.

SPLIT RANGING

The 4-20mA input, 3-15 psig output model can be recalibrated to provide 3-9 psig or 9-15 psig output, for split ranging applications.

MOUNTING

The 18-1000 Transducers can be pipe, panel or bracket mounted in any position. Positions other than vertical will require recalibration of the zero adjustment. For maximum output pressure stability, the 18-1000 should be mounted in a vibration-free location or such that vibration is isolated to the X and Z axis shown on the dimensional drawing.

FIELD REVERSIBLE

All 18-1000 Transducers are calibrated at the factory for direct acting operation but may be used in the reverse acting mode by reversing the polarity of the signal leads and recalibrating.

SPECIFICATIONS MODEL 18-1000 & 18-1000 XP

Supply Pressure Range:

Min.: 21 kPa (3 psig) above max. output
 Max.: 700 kPa (100 psig)

Supply Pressure Sensitivity:

<±0.15% of span per 10 kPa
 (<±0.1% of span per psig) at mid range

Terminal Based Linearity: <±1.0% of span

Repeatability: <0.5% of span

Hysteresis: <1.0% of span

Flow Rate at Midrange (Minimum):

General Purpose Model:
 7.6 m³/hr ANR (4.5 SCFM) at 175 kPa
 (25 psig) supply; 20.0 m³/hr ANR (12 SCFM)
 at 700 kPa (100 psig) supply

Air Consumption (Maximum):

0.2 m³/hr (0.1 SCFM) at midrange

Port Sizes: 1/4 NPT (pneumatic);
 1/2 NPT (electric)

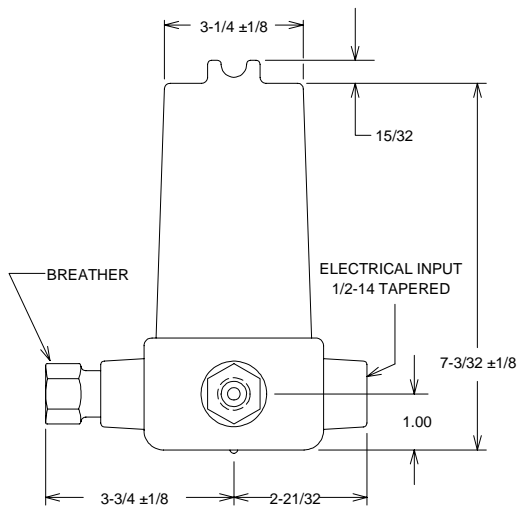
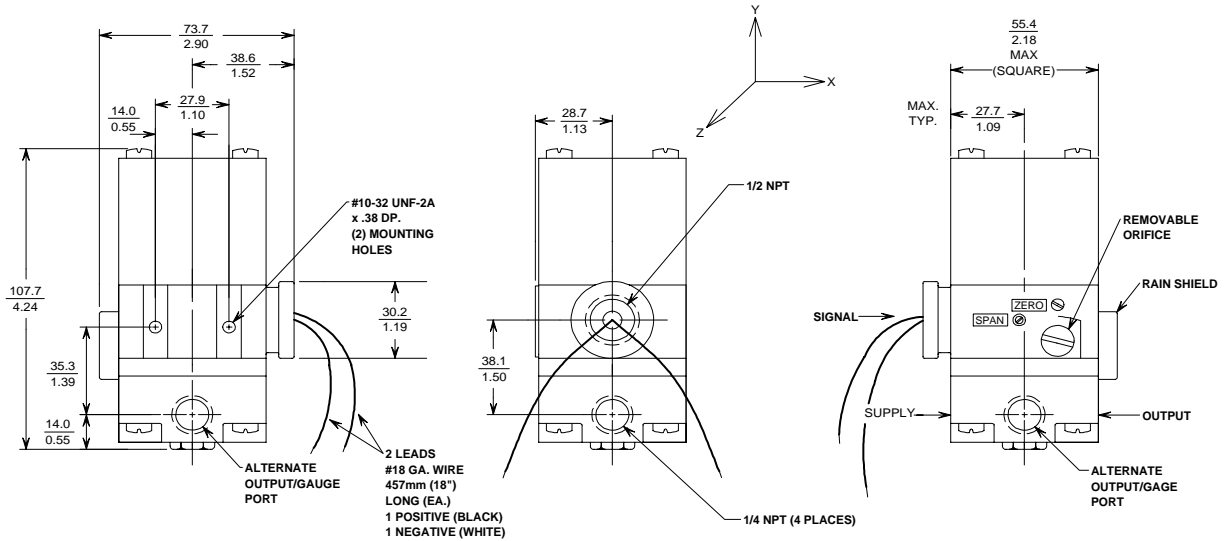
Size:

General Purpose Model:
 54 mm x 54 mm x 102 mm
 (2-1/8 in. x 2-1/8 in. x 4 in.)
 Explosion Proof Model:
 163 mm x 151 mm x 192 mm
 (6-13/32 in. x 5-15/16 in. x 7-9/16 in.)

Weight:

General Purpose Model: 0.94 kg (2.1 lb)
 Explosion Proof Model: 2.35 kg (5.2 lb)

GENERAL DIMENSIONS 18-1000



MODEL 18-1000-XP

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