DEVAR Inc.

706 Bostwick Ave., Bridgeport, Connecticut 06605

INSTALLATION AND MAINTENANCE INSTRUCTIONS
TYPE 1001 I/P AND E/P TRANSDUCER
NEMA-1

MOUNTING:

PIPE: Due to its light weight, the transducer may be supported using its own plumbing on pipes used for air supply and output.

PANEL: With access to the rear of panel: Attach transducer to panel using two 10-32 screws (supplied) into the threaded holes on the back of the transducer. Without access to rear of panel: Attach Panel Bracket using two 10-32 screws (supplied) into the threaded holes on the back of the transducer. Four clearance holes for #10 screws are provided in the bracket to mount transducer to the panel.

BOTTOM: The transducer may be direct bottom mounted using the four 8-32 screws (supplied) into the threaded holes in the bottom of the transducer. The transducer can also be bottom mounted indirectly using the Panel Bracket. Attach the Panel Bracket to the bottom of the transducer using the four 8-32 screws (supplied) into the threaded holes on the bottom of the transducer. Four clearance holes for #10 screws are provided in the bracket to mount the transducer to panel.

VALVE: The transducer may be mounted directly to a valve by using the optional Valve & Pipe Bracket. Attach the Valve & Pipe Bracket using the two 10-32 screws (supplied) into the threaded holes on the back of the transducer. The four holes provided in the Valve & Pipe Bracket for attaching it to the transducer allow the bracket to be attached in four different orientations, each 90-degrees apart. Two slotted holes in the bracket for 5/16-inch (max) bolts are provided for mounting onto the valve yoke.

2" PIPE: Use the optional 2-inch Pipe Mounting Kit in conjunction with the optional Valve & Pipe Bracket. Mount the Valve & Pipe Bracket per the above instructions. Place the pipe clamp around the pipe and drop the pipe clamp saddle over the two ends of the pipe clamp. Place the slotted holes in the Valve & Pipe Bracket over the ends of the pipe clamp and secure with the nuts and washers provided.

DIN RAIL: A DIN RAIL mounting adapter may be supplied as an option with the transducer. Attach adapter to bottom of the transducer using four 8-32 screws. Adapter allows transducer to mount with mounting rails NS32 in accordance with DIN EN50035 and mounting rails NS35/15 in accordance with DIN EN50022.

MOUNTING NOTES:

NEMA 1 and NEMA 4X transducers can be mounted in any position. NEMA 3R transducers MUST be mounted with the cover facing upwards in order to comply with NEMA 3R rating.

AIR CONNECTIONS:

SUPPLY: Connect air supply to 1/4 NPT port marked "IN" on base of unit. Avoid getting pipe compound in air line and Transducer. The supply air must be instrument quality air as defined by ISA STANDARD 57.0.01-1996.

OUTPUT: Connect output to 1/4 NPT port marked "OUT" on base of unit.

GAUGE: Optional gauge may be supplied to measure output pressure. Standard unit is shipped with a 1/8 NPT pipe plug installed in gauge port.

ELECTRICAL CONNECTIONS:

Remove the cover and feed the stripped & tinned wires (#14 A.W.G. Max.) through the 1/2 NPT electrical conduit fitting. If wiring an I/P Transducer, attach the negative wire to position No. 1 of the printed wiring board terminal block. Attach the positive wire to position No. 3 of the printed wiring board terminal block. Refer to the drawing on last page of these instructions. If wiring an E/P Transducer, attach the positive signal voltage wire to position No. I of the printed wiring board terminal block. Attach the supply and signal common wires to position No. 2 of the printed wiring board terminal block. Finally, attach the positive supply voltage wire to position No. 3 of the printed wiring board terminal block. Refer to the drawing on last page of these instructions. Reinstall the cover.

CALIBRATION:

A. "Zero" & "Span"

Transducer should be calibrated after mounting.

1. open access door on cover to reveal "zero" and "span" potentiometer adjustment screws.

2. Set input signal to lowest value (4 mA, 1 VDC, etc.).

3. On direct acting units, adjust "ZERO" potentiometer screw until output pressure at minimum range value (e.g. 3 psig for 3-15, etc.). Turn clockwise to increase pressure, counterclockwise to decrease pressure.

4. On reverse acting units, adjust "ZERO" potentiometer screw until output pressure is at maximum range value (e.g. 15 psig for 15-3 etc.). Turn counterclockwise to increase pressure, clockwise to decrease pressure.

NOTE; The zero pot provides approximately 20 total turns of adjustment with ±0.3 PSI (Min.) variation about the minimum range value. If the zero pot is adjusted to its extreme, latch-up of the zero circuit may occur. Electrically center the zero pot and wait 30 sec. for the circuit to unlatch.

5. Set input signal to highest value (20 mA, 1OVDC, etc.).

6. On direct acting units, adjust "SPAN" potentiometer screw until output pressure is at maximum range value (e.g. 15 psig for 3-15, etc.). Turn clockwise to increase pressure, counterclockwise to decrease pressure.

7. On reverse acting units, adjust "SPAN" potentiometer screw until output pressure is at minimum range value (e.g. 3 psig for 15-3 etc.). Turn counterclockwise to increase pressure, clockwise to decrease pressure.

8. Repeat step 2, and check pressure at minimum input signal. If necessary readjust per steps 3 or 4.

9. Close access door on cover.

B. "Damping"

1. If the unit output pressure displays a rapid cycling action or slow cycling drift, the system is under-damped or over-damped respectively. To eliminate this condition the following steps are required.

2. Open access door on cover to its second detent position to reveal the single turn "damping" potentiometer.

3. For the under-damped condition (rapid cycling action) adjust the damping pot cw until stabilization is achieved at maximum signal input.

4. For the over-damped condition (slow cyclical drift) adjust the damping pot ccw until the pressure at maximum signal input is on the verge of instability.

CAUTION; No mechanical adjustments or calibrations are necessary or allowed. All calibration MUST be done electrical potentiometers on the enclosed circuit board only.

MAINTENANCE:

If internal clogging occurs due to improper filtering of the supply air, the orifice can be cleaned without removing the unit from its mounting or plumbing. Turn off the supply air. Unscrew and remove the orifice assembly. Clean the orifice through the side of the orifice assembly using a wire that has a smaller diameter than 0.010 IN (0.25 MM). Shake out any loose particles inside of the orifice assembly. Screw orifice assembly back into unit being extremely careful to properly seat the o-ring seal at the tip end of the orifice.

NOTE. 0-ring seal may remain in the body.

If the transducer is still clogged, turn off the air supply. Unscrew the bottom plug. Clean out all dirt and particles from the supply seat area. Re-assemble the plug, be sure the pintle (supply) spring is attached to the pintle and nested in the plug. Turn on air. If clogging still occurs contact the factory.

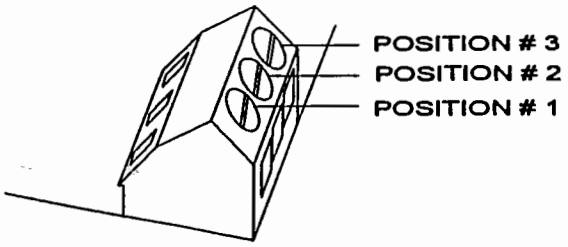
OTHER PROBLEMS: Please consult the factory.

TABLE 1: SUPPLY PRESSURE REQUIREMENTS

Standard Output Calibration	0-2 PSI	0-5 PSI	0-30 PSI	0-60 PSI	0-100 PSI	0120 PSI	1-17 PSI	3-9 PSI	3-15 PSI	3-27 PSI	6-30 PSI
Transducer Supply Pressure	20-45 PSI	20-45 PSI	50-90 PSI	80-120 PSI	110-130 PSI	130-140 PSI	30-70 PSI	20-100 PSI	20-100 PSI	35-100 PSI	35-100 PSI

TABLE 2: ELECTRICAL CONNECTIONS

TERMINAL BLOCK	I/P TRANSDUCERS MODELS	E/P TRANSDUCER MODELS
POSITION # 1	(-) NEGATIVE SIGNAL	(+) POSITIVE SIGNAL
POSITION # 2	NOT USED	COM GND FOR SIGNAL & SUPPLY
POSITION # 3	(+) POSITIVE SIGNAL	(+) POSITIVE SUPPLY



SPECIFICATIONS

Accuracy:	± 0.10% of output span, typical ± 0.25% of output span, maximum
Hysteresis:	0.01% of output span, typical ± 0.10% of output span, maximum
Dead Band:	Not measurable
Repeatability:	0.01% of output span, typical 0.10% of output span, maximum
Ambient Temperature Effect Zero: Span:	0.004% of nominal span per °F, typical ± 0.022% of nominal span per °F, maximum ± 0.013% of calibrated span per °F, typical ± 0.022% of calibrated span per °F, maximum
Compensated Temperature Range:	+32°F to +122°F
Operating Temperature Range Buna-N elastomers: Viton elastomers:	 -20°F to 160°F 0°F to 160°F
Storage Temperature Range Buna-N elastomers: Viton elastomers:	 -40°F to 200°F -15°F to 200°F
Vibration Effect:	Less than 0.5% of SPAN per IG, 5-2000 Hz, 3G maximum, 3 axes
Mounting Position Effect:	Not measurable
Loop Load, I/P transducer:	Less than 10 VDC drop at 20 mA Less than 12 VDC drop at 50 mA
Supply Voltage, E/P Transducer Intrinsically Safe/Nonincendive: General Purpose:	 9 VDC to 28 VDC, less then 20 mA 9 VDC to 40 VDC, less then 20 mA
Supply Voltage Effect:	Not measurable
Signal Impedance, E/P Transducer:	6000 Ohm minimum
RFI/EMI Effect (NEMA 4X):	Less than 0.25% of SPAN, IV/meter, 20-1000 MHz.
Supply Pressure Requirements:	See TABLE 1
Supply Pressure Effect:	Not measurable
Air Consumption:	6.0 SCFH maximum
Forward Flow Capacity (Supply):	Standard Range 7 SCFM Extended Range (over 30 PSI) 12 SCFM
Port Sizes:	Pneumatic: 1/4" NPT Electrical: 1/2" NPT

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DIMENSIONS

General Purpose, NEMA 1 and Rain-Proof, NEMA 3R