

PX154 SERIES Pressure Transducer

1-800-TC-OMEGA



An OMEGA Technologies Company

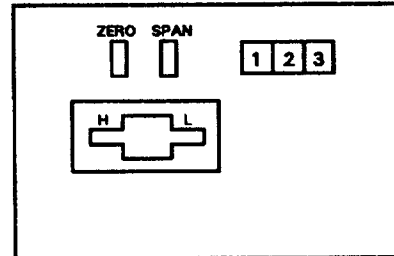
One Omega Drive, Box 4047, Stamford, CT 06907
Telex 996404 Cable OMEGA FAX (203) 359-7700

Output: 4-20 mA, 2-Wire Loop

TERMINATION SCHEDULE

- | | |
|--|---|
| <input type="checkbox"/> 24 Vdc power
4-20 mA, 2-wire loop signal | <input type="checkbox"/> 4-20 mA, 2-wire, Field
Conversion to 1-5 Vdc Signal |
| ① +24 Vdc | ① +24 Vdc |
| ② 4-20 mA signal out | ② $\frac{1-5 \text{ Vdc}}{250 \text{ ohms}}$ |
| ③ No connection | ③ Common |

PRESSURE TRANSMITTER BOARD LAYOUT



Gauge (Positive) Pressure Sensing

Connect media pressure to port labeled "HIGH", with port labeled "LOW" vented to atmosphere.

Negative (Vacuum) Pressure Sensing

Connect media pressure to port labeled "LOW", with port labeled "HIGH" vented to atmosphere.

Differential Pressure Sensing

Connect the higher of the two media pressures to port labeled "HIGH" and the lower of the two pressures to port labeled "LOW".

Port Connections - 1/8" NPT female. (ALWAYS USE A SECOND WRENCH TO HOLD THE PORT HEX NUT, THEREBY ELIMINATING THE POSSIBILITY OF ROTATING THE BRASS PORT FITTING.)

Mounting

Transducer can be operated in any position; however, be alert to moisture passing through non-waterproof electrical connectors.

Media Compatibility

"HIGH" port - Positive or high pressure port.
30% Glass-filled Polyester, Silicon, Buna-N, Vinyl tubing, Brass or 316 S.S. port fittings.

"LOW" port - Negative or low pressure port.
30% Glass-filled Polyester, Silicon, Fluorosilicone, Vinyl tubing, Brass or 316 S.S. port fittings.

Calibration

The Zero and Span may be adjusted if necessary or desirable; however, the requested full scale range as shipped is established with fixed resistors minimizing the range of the adjustment pots.

The average full scale adjustability is approximately $\pm 10\%$ of the range shipped.

Minimum Pressure Operation - (After applying power, allow approximately 20 - 30 minutes for signal to stabilize)

When operating at low differential pressures of less than 5" W.C. or in applications where the pressure is fluctuating rapidly, it is advisable to insert "snubbers" or air flow restrictors in the input lines. This "steadies" the output signal and keeps it from bouncing erratically.

Adjustments

The transducers are adjusted for the specified range at the factory and should require no further adjustments.

"Z" - Zero control is adjusted for 4 mA output (or 1 volt) signal at 0 psi, or minimum pressure.

"S" - Span control is adjusted to change the full scale range of the transducer.

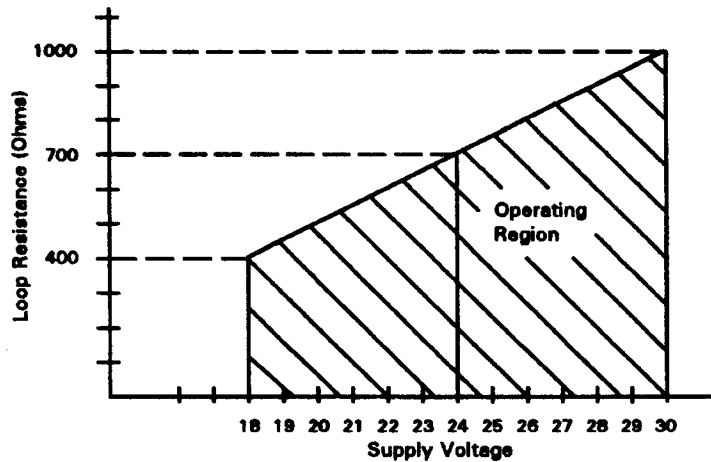
Due to resistor values required to compensate for the null off-set of the sensing module, evidence of Zero and Span interaction may be experienced in re-adjusting.

SPECIFICATIONS @ 24 Vdc and 25 °C

Excitation	18 Vdc to 30 Vdc
Linearity and Hysteresis	± 0.1% FS
Zero and Span Adjustments	± 10% FS
100% Relative Humidity	Non-condensing
Temperature Zero and Span Effects	See Figure 1
Shock Resistance	50G, 11ms, Half Sine
Vibration	10 to 2000 Hz @ 100 Sine

Figure 1

Non-Temperature Compensated Accuracy (All Output Signals)			
Span	Accuracy with Temperature Shift from 25 °C Ambient (% FS)		
	± 5 °C	± 10 °C	± 25 °C
0-27.7"WC	± .11%	± .32%	± 1.00%
0-25.0"WC	.12	.36	1.10
0-10.0"WC	.30	.90	2.28
0-5.0 "WC	.60	1.80	5.54
0-3.0 "WC	1.00	3.00	9.23
0-1.0 "WC	3.00	9.00	27.70



To determine accuracy for spans not shown:
 $27.7"WC \times$ Factors shown above for 0-27" span
 FS Range and temperature column selected.

**WARNING!
 READ BEFORE INSTALLATION**

Fluid hammer and surges can destroy any pressure transducer and must always be avoided. A pressure snubber should be installed to eliminate the damaging hammer effects.

Fluid hammer occurs when a liquid flow is suddenly stopped, as with quick closing solenoid valves. Surges occur when flow is suddenly begun, as when a pump is turned on at full power or a valve is quickly opened.

Liquid surges are particularly damaging to pressure transducers if the pipe is originally empty. To avoid damaging surges, fluid lines should remain full (if possible), pumps should be brought up to power slowly and valves opened slowly. To avoid damage from both fluid hammer and surges, a surge chamber should be installed and a pressure snubber should be installed on every transducer.

Symptoms of fluid hammer and surge's damaging effects:

- a) Pressure transducer exhibits an output at zero pressure (large zero offset). If zero offset is less than 10% FS, user can usually re-zero meter, install proper snubber and continue monitoring pressures.
- b) Pressure transducer output remains constant regardless of pressure.
- c) In severe cases, there will be no output.

WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of 13 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that our customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. Our Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive current, heat, moisture, vibration or misuse. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses and traces.

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