



PX540 Series Pressure Transducers

Operator's Manual: M1137/0698



General Description

The OMEGA® PX540 Pressure Transducer consists of a pressure connection section with welded stainless steel diaphragm and a case for housing the electronic equipment and the electrical connection. The piezoresistive pressure sensor is installed behind the diaphragm, with the intervening space filled with silicone oil as pressure transmission liquid.

The pressure sensor's signal is converted by an amplifier to a signal of 4 to 20 mA. The pressure connection DIN 3852 is used as a seal behind threads by means of the added NBR O-ring. (No flush-mounted seal).

Characteristics of this transducer include:

- 4 to 20 mA current output which is ideal for long distance signal transmitting and industrial environments.
- High accuracy and repeatability.
- Corrosion resistant, and
- Rugged NEMA=12 dust-tight/drip-tight enclosure.

How To Adjust Zero and Span

NOTE:

Unit has been factory calibrated. No adjustment is required upon delivery from OMEGA Engineering.

Zero adjustment must be performed at no pressure and the output reading must be 4 mA.

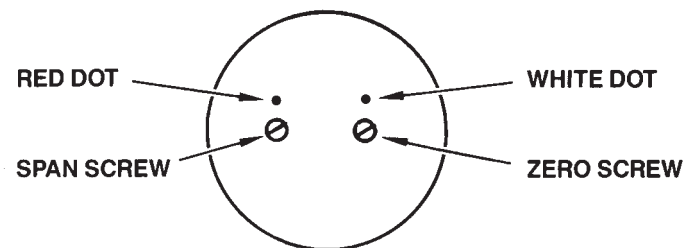
Span adjustment must be performed at full scale pressure and the output reading must be 20 mA.

If you do not get either of these readings at the required no pressure or full scale pressure, go through the following procedure to get to the screws.

Remove the connector from the body of the transmitter as described in steps 1 and 2 in the Wiring Section.

Adjust the zero screw so the output reading is 4 mA at no pressure. At full scale pressure, the output must be 20 mA; if it is not, adjust the span screw.

The Zero screw is marked with a white dot. The span screw is marked with a red dot. Refer to Figure 1.



TOP VIEW OF TRANSDUCER
(AFTER REMOVAL OF CONNECTOR)

Figure 1.
**Location of Adjustment
Screws**

Wiring

To access the screw terminals and wire the transducer, refer to Figure 2, and the following procedure.

1. Locate the screw at the top of the transducer and unscrew.
2. Separate connector from the rest of the transducer body. Remove the screw and rubber gasket from the connector and set aside.
3. Using a small blade screwdriver, insert it in the corner slot and pry off square cover (and terminals).
4. Insert cable into hole (not screw hole) and feed through into square part of assembly. Wire terminals in terminal block using wiring diagram (refer to Figure 3).
5. Replace terminal block and snap in place.
6. Put rubber gasket on unit.
7. Connect larger part of transducer to wired unit observing positions of blades.
8. Insert screw in screw hole and tighten two parts to each other.

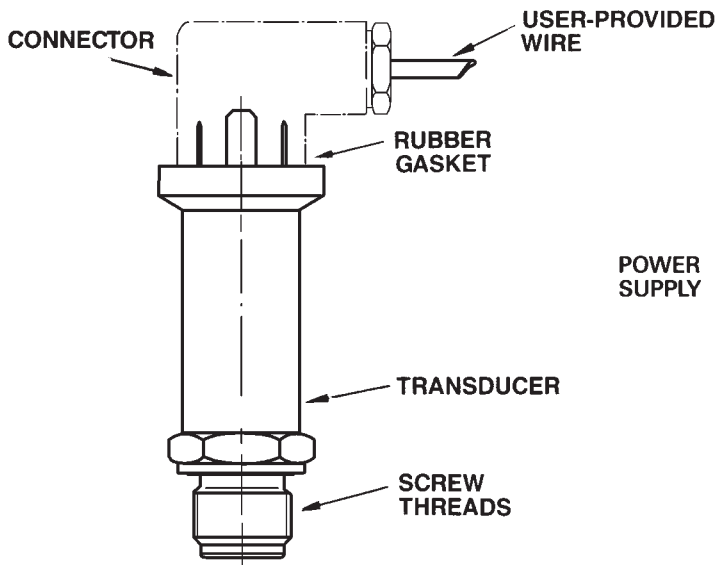


Figure 2.
Pressure Transducer

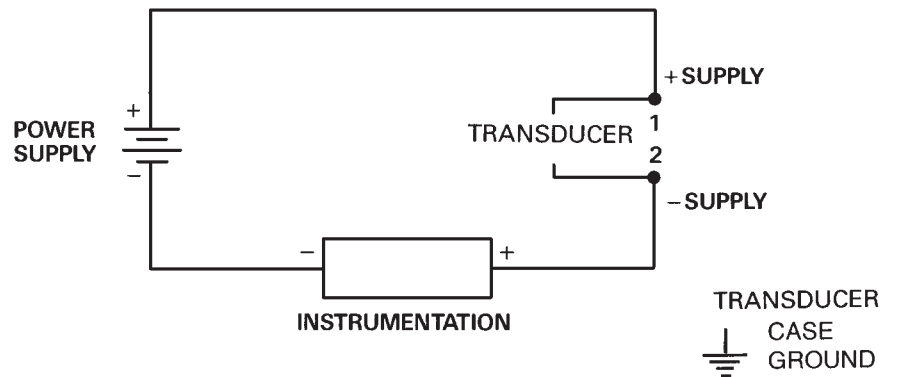


Figure 3.
Wiring Diagram

Specifications

Excitation:	10 to 30 VDC
Output:	4 to 20 mA two wire
Insulation Resistance:	500 VAC
Maximum Loop Impedance:	(Supply Voltage -10) x 50 (refer to Figure 4)

Performance

Accuracy:	0.3% F.S. Typ (0.5% max)
Hysteresis and Repeatability:	0.1% F.S.
Compensated Temperature Range:	32° to 122° F (0° to 50° C)
Operating Temperature Range:	-4° to 175° F (-20° to 80° C)
Thermal Zero Effect:	0.03% F.S./° C
Thermal Sensitivity Effect:	0.03% F.S./° C
Maximum Pressure:	150% Full Scale

Construction

Body Material:	Stainless steel
Wetted Parts:	ANSI 316L Stainless steel
Fill Fluid:	Silicone oil
Process Connection:	1/2 NPT male
Electrical Connection:	DIN connector with screw terminals
Response Time:	2 ms
Weight:	0.35 lb.
Dimensions:	Refer to Figure 5.

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:

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

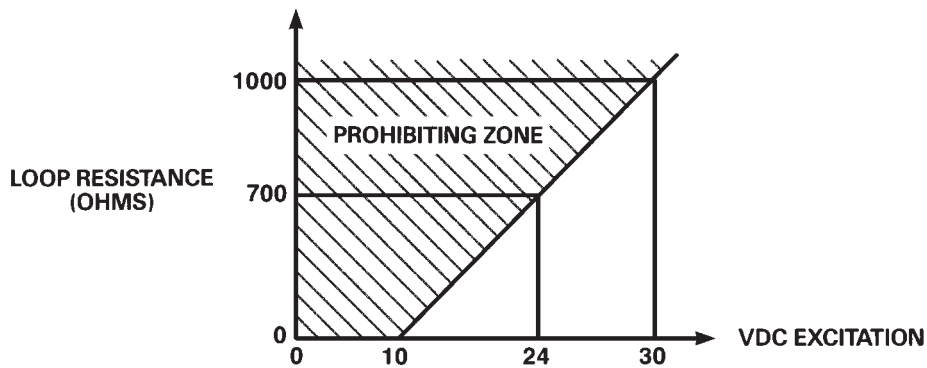


Figure 4. Operating Range of Transducer

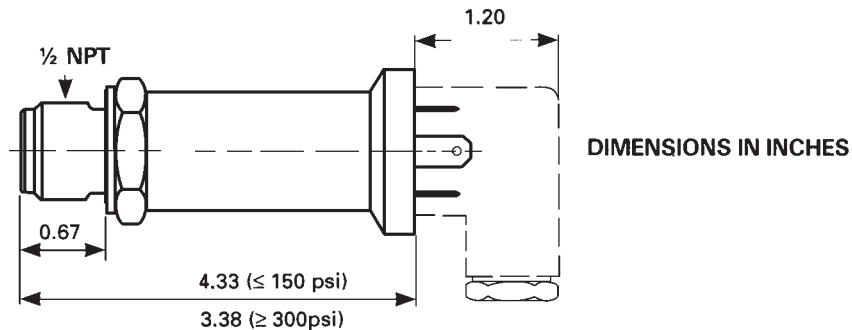


Figure 5. Dimensional Diagram



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 OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's 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 corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

OMEGA is glad to offer suggestions on the use of its various products. Nevertheless, OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

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1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS OR CALIBRATION, consult OMEGA for current repair/calibration charges. Have the following information available BEFORE contacting OMEGA:

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