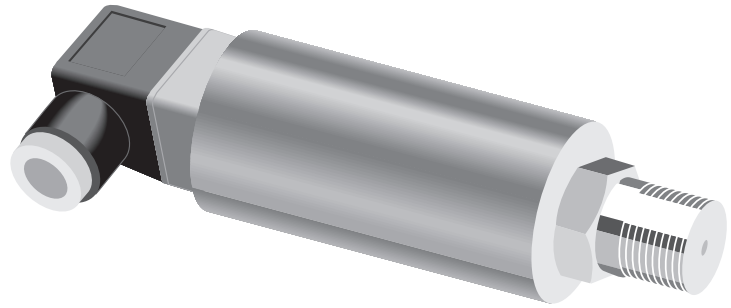


**omega.com**<sup>®</sup>

Ω OMEGA<sup>®</sup>

## PX541 SERIES

Pressure Transducers



INSTRUCTION  
SHEET

M1145/0402

### GENERAL DESCRIPTION

The OMEGA<sup>®</sup> PX541 pressure transmitter consists of a pressure connection section with built-in piezoresistive pressure sensor, and a case for housing the electronic equipment and the electrical connection. The pressure sensor is immersed in silicone oil, which is separated from the medium being measured with a thin stainless steel diaphragm.

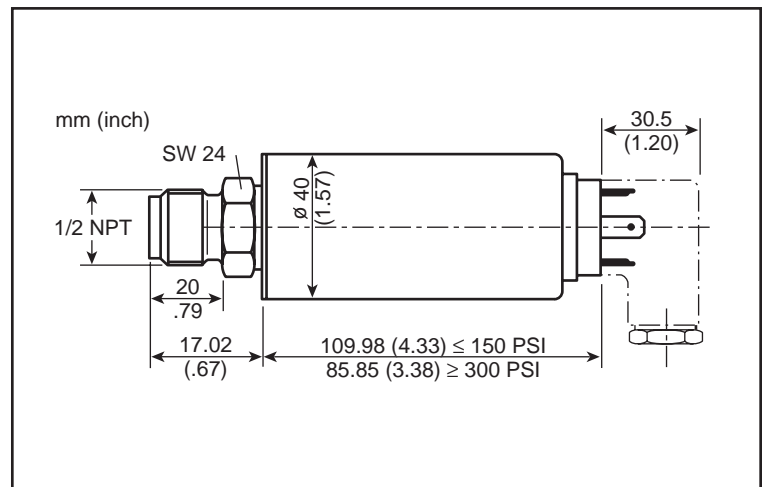
Characteristics of the PX541 include:

- 4-20 mA Current Output, which is Ideal for Long Distance Signal Transmitting and Industrial Environments
- High Accuracy and Repeatability
- Corrosion Resistant
- Rugged NEMA-12 Dust-tight/Drip-tight Enclosure

### AVAILABLE MODELS

RANGE (PSI)	MODEL
-15- to 15	PX541-15V15GI
15 to 30	PX541-15V30GI
-15 to 0	PX541-030VACI
0 to 1.5	PX541-1.5GI
0 to 3	PX541-003GI
0 to 7.5	PX541-7.5GI
0 to 15	PX541-015GI
0 to 30	PX541-030GI
0 to 75	PX541-075GI
0 to 150	PX541-150GI
0 to 300	PX541-300GI
0 to 750	PX541-750GI
0 to 1500	PX541-1.5KGI
0 to 3000	PX541-3KGI

### DIMENSIONS



### 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.

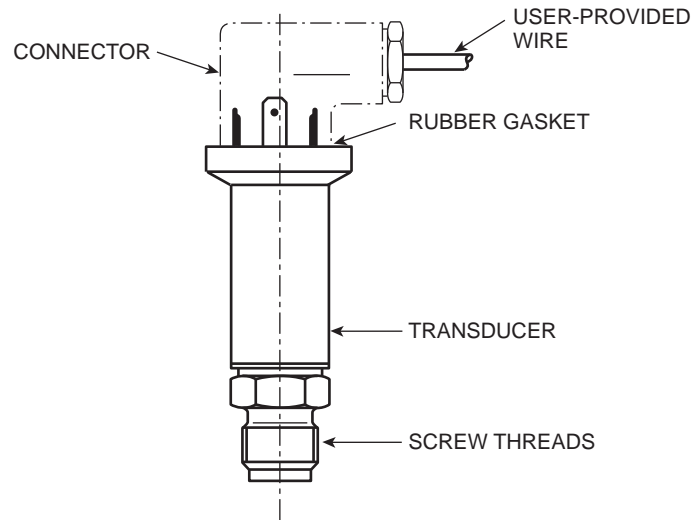
Symptoms of fluid hammer and surge's damaging effects:

- 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.

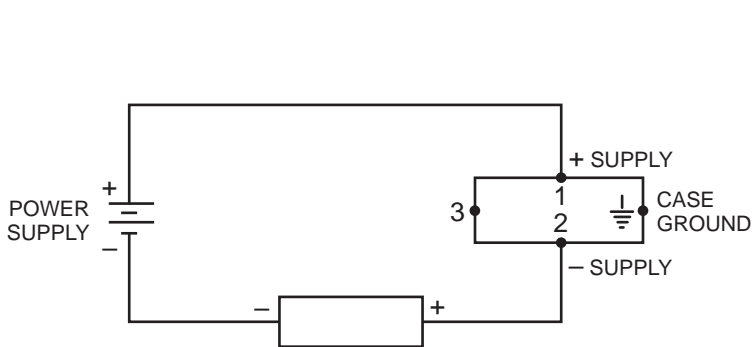
## WIRING

To access the screw terminals and wire the transducer, refer to Figure 1, and the following procedure:

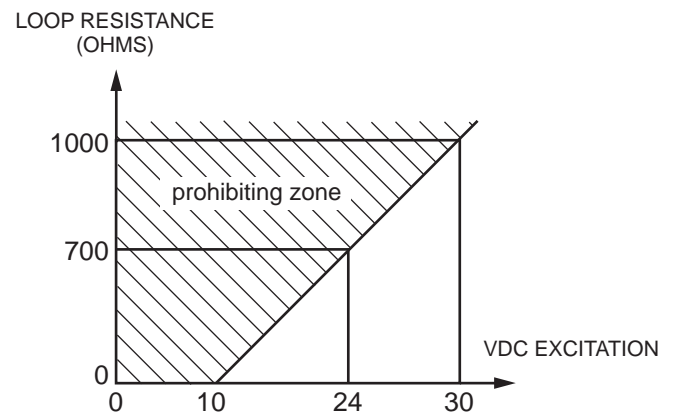
1. Locate the screw at the top of the transducer and unscrew.
2. Separate connector from the rest of the transducer body. Remove the screw and rubber gasket from the connector and set aside.
3. Using a small blade screwdriver, insert it in the corner slot and pry off square cover (and terminals).
4. Insert cable into hole (not screw hole) past grommet and feed through into square part of assembly. Wire terminals in terminal block using wiring diagram (refer to Figure 2).
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 1. Pressure Transducer**



**Figure 2. Wiring Diagram**



**Figure 3. Operating Range of Transducer**

## ADJUSTING 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, adjust the zero or span screw until you get the desired reading. Refer to Figure 4.

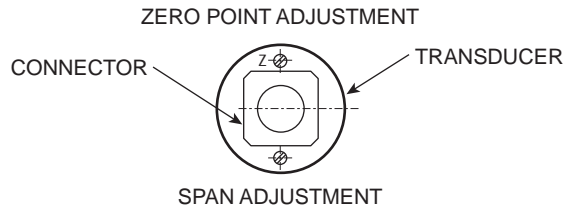


Figure 4. Location of Adjustment Screws

## SPECIFICATIONS

<b>EXCITATION:</b>	10 to 30 VDC
<b>OUTPUT:</b>	4-20 mA two wire
<b>MAXIMUM LOOP IMPEDANCE:</b>	1000 ohms
<b>INSULATION RESISTANCE:</b>	500 VAC
<b>POWER SUPPLY EFFECT:</b>	.0001 mA/V

## PERFORMANCE

<b>ACCURACY:</b>	0.3% FS
<b>ZERO ADJUSTMENT (Balance):</b>	2% FS
<b>SPAN ADJUSTMENT (Balance):</b>	5% FS
<b>COMPENSATED TEMPERATURE RANGE:</b>	32 to 120°F (0 to 50°C)
<b>THERMAL ZERO EFFECT:</b>	0.025% FS/°C
<b>THERMAL SENSITIVITY EFFECT:</b>	0.026% FS/°C
<b>MAXIMUM PRESSURE:</b>	150% FS

## CONSTRUCTION

<b>BODY MATERIAL:</b>	Stainless Steel
<b>WETTED PARTS:</b>	ANSI 316L SS, Silicone O-rings
<b>FILL FLUID:</b>	Silicone oil
<b>PROCESS CONNECTION:</b>	1/2 NPT male
<b>ELECTRICAL CONNECTION:</b>	DIN connector with screw terminals connected
<b>WEIGHT:</b>	6 oz.
<b>RESPONSE TIME:</b>	2 ms



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**WARNING:** These products are not designed for use in, and should not be used for, patient-connected applications.



**WARRANTY/DISCLAIMER**

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA's 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 malfunctions, 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. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been 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 are not warranted, including but not limited to contact points, fuses, and triacs.

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CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

**RETURN REQUESTS / INQUIRIES**

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order 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, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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