General Description

The OMEGA® PX700 Series Pressure Transducers have been specifically designed for use in harsh, demanding industrial environments. Their NEMA-4 rated enclosure and corrosive resistant construction makes the PX700 Series ideal for use both indoors and out. The PX700 Series offers pressure ranges from 0-15 psig to 0-10k psig, and two different output types - volt and current. The PX700 is available with a 0.5 to 5.5 V or 1 to 11 V output, or a 4 to 20 mA output. All models have adjustable zero and span.

Outline Dimensions

Terminal Connections

V Models:
1 (+) Excitation
2 (+) Output
3 Common
4 Not used

I Models:
1 Excitation*
2 Excitation*
3 Not Used
4 Not Used

* Polarity is not dedicated - either terminal can be positive (+) or negative (–).

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.
NULL AND SPAN ADJUSTMENTS (Voltage and Current Models Only)

The PX700 Pressure Sensors have been factory calibrated to give the rated output and no adjustment should be necessary. However, if so desired, small residual offsets can be corrected on the voltage and current models by the following procedure:

1. Connect unit as per terminal plate.
2. With zero pressure applied to the transmitter pressure port, adjust NULL ADJ trimpot for rated output at zero pressure.

3. Apply a known accurate pressure to the transmitter pressure port. Ideally, this pressure should be the full range pressure of the transmitter; however, it is acceptable to use an intermediate value. Adjust the SPAN ADJ for the rated output at the applied pressure.
4. Because of a small interaction between the SPAN ADJ and the NULL ADJ trimpots, repeat steps 2 ad 3 as required.

**MINIMUM ADJUSTMENT RANGE**

<table>
<thead>
<tr>
<th>VOLTAGE MODELS</th>
<th>CURRENT MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 to 5.5V</td>
<td>1 to 11V</td>
</tr>
<tr>
<td>Zero</td>
<td>0.2 to 1.3 V</td>
</tr>
<tr>
<td>Span</td>
<td>4.8 to 5.2 V</td>
</tr>
<tr>
<td>4 to 20 mA</td>
<td>3.6 to 5.0 mA</td>
</tr>
</tbody>
</table>

**PX700 SERIES SPECIFICATIONS**

**EXCITATION:**
- 0.5 to 5.5 Models: 12 to 32 Vdc
- 1 to 11 V Models: 14 to 32 Vdc
- I Models: 12 to 67 Vdc (with appropriate loop resistance - see chart)

**OUTPUT:**
- V Models: 0.5 to 5.5 or 1 to 11 V;
- I Models: 4 to 20 mA

**PERFORMANCE:**
- 2X full scale or 13,000 psi

**PROOF PRESSURE:**
- Whichever is less

**ACCURACY:**
- 0.25% full scale at 75% (includes linearity, hysteresis, and repeatability)

**ZERO BALANCE:**
- ±2% of full scale

**SPAN ACCURACY:**
- ±1% of full scale 75°F

**COMPENSATED TEMPERATURE RANGE:**
- 30 to 160°F

**TOTAL THERMAL EFFECT:**
- 1% of full scale max.

**OPERABLE TEMPERATURE RANGE:**
- 0 to 160°F
CONSTRUCTION

WETTED PARTS: 17-4 pH Stainless Steel
PRESSURE PORT CONNECTION: 7/16-20 UNF
ENCLOSURE: NEMA-4 rated
PRESSURE CAVITY VOLUME: 0.106 cubic inches

ACCESSORIES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA-716-14M-SS</td>
<td>Stainless Steel ⅛” NPT Male Pressure Port Adaptor</td>
</tr>
<tr>
<td>RA-716-14F-SS</td>
<td>Stainless Steel ⅛” NPT Female Pressure Port Adaptor</td>
</tr>
</tbody>
</table>

Where:

- \( V_{ex} = \) Transmitter excitation voltage
- \( V_{ps} = \) System power supply voltage
- \( R_c = \) Total wiring resistance
- \( R_s = \) Current sensing resistor (input module internal resistance)
- \( R_x = \) Additional resistance required for safe transmitter operation

Minimum \( R_x \) value is:

\[
R_x (\text{min}) = R_T - R_s - R_c
\]

here \( R_T = \) Minimum required loop resistance (from chart)

Maximum \( R_x \) value is:

\[
R_x (\text{max}) = \frac{V_{ps} - 12}{.02} - \frac{V}{A} - R_s - R_c
\]
For immediate technical or application assistance:

U.S.A. and Canada:
Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®
Customer Service: 1-800-622-2378 / 1-800-BEST®
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN®

Mexico:
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Toll Free in Germany: 0800 639 7678
e-mail: info@omega.de

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.

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 in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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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