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PX700 SERIES

Pressure Transducer

INSTRUCTION
SHEET

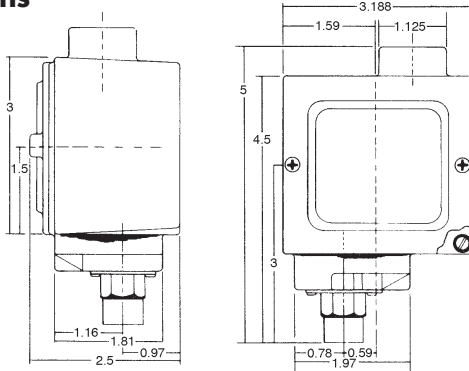
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General Description

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

DIMENSIONS
IN INCHES

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.

NOTE

To allow precise calibration the trimpots are multiturn types.

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.

MIINIMUM ADJUSTMENT RANGE

	VOLTAGE MODELS		CURRENT MODELS
	0.5 to 5.5V	1 to 11V	4 to 20 mA
Zero	0.2 to 1.3 V	0.4 to 1.3 V	3.6 to 5.0 mA
Span	4.8 to 5.2 V	9.2 to 10.8 V	15 to 17 mA

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, hystersis, 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

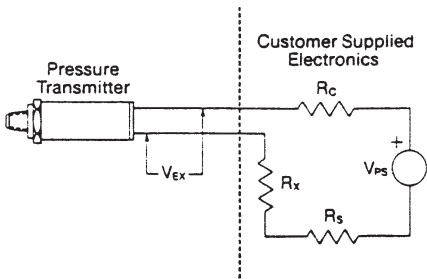
CONSTRUCTION

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

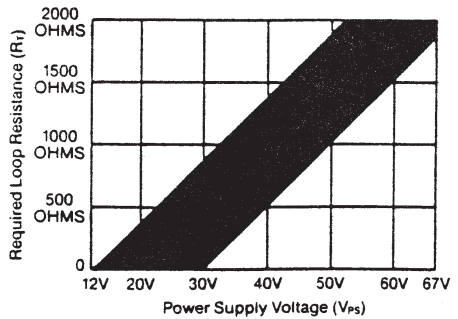
ACCESSORIES

PART NO.	DESCRIPTION
RA-716-14M-SS	Stainless Steel 1/4" NPT Male Pressure Port Adaptor
RA-716-14F-SS	Stainless Steel 1/4" NPT Female Pressure Port Adaptor

TYPICAL SCHEMATIC APPLICATION CURRENT MODELS



REQUIRED LOOP RESISTANCE VS POWER SUPPLY VOLTAGE (Current Models)



- 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:

$$R_X (\min) = R_T - R_S - R_C$$

here R_T = Minimum required loop resistance (from chart)

Maximum R_X value is:

$$R_X (\max) = \frac{V_{PS} - 12}{.02} \frac{V}{A} - R_S - R_C$$



OMEGAnet® Online Service
omega.com

Internet e-mail
info@omega.com

Servicing North America:

U.S.A.: One Omega Drive, Box 4047
ISO 9001 Certified Stamford, CT 06907-0047
Tel: (203) 359-1660 FAX: (203) 359-7700
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Canada: 976 Bergar
Laval (Quebec) H7L 5A1, Canada
Tel: (514) 856-6928 FAX: (514) 856-6886
e-mail: info@omega.ca

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U.S.A. and Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®
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Mexico: En Español: (001) 203-359-7803 e-mail: espanol@omega.com
FAX: (001) 203-359-7807 info@omega.com.mx

Servicing Europe:

Benelux: Postbus 8034, 1180 LA Amstelveen, The Netherlands
Tel: +31 (0)20 3472121 FAX: +31 (0)20 6434643
Toll Free in Benelux: 0800 0993344
e-mail: sales@omegae.nl

Czech Republic: Frystatska 184, 733 01 Karviná, Czech Republic
Tel: +420 (0)59 6311899 FAX: +420 (0)59 6311114
Toll Free: 0800-1-66342 e-mail: info@omegashop.cz

France: 11, rue Jacques Cartier, 78280 Guyancourt, France
Tel: +33 (0)1 61 37 2900 FAX: +33 (0)1 30 57 5427
Toll Free in France: 0800 466 342
e-mail: sales@omega.fr

Germany/Austria: Daimlerstrasse 26, D-75392 Deckenpfromm, Germany
Tel: +49 (0)7056 9398-0 FAX: +49 (0)7056 9398-29
Toll Free in Germany: 0800 639 7678
e-mail: info@omega.de

United Kingdom: One Omega Drive, River Bend Technology Centre
ISO 9002 Certified Northbank, Irlam, Manchester
M44 5BD United Kingdom
Tel: +44 (0)161 777 6611 FAX: +44 (0)161 777 6622
Toll Free in United Kingdom: 0800-488-488
e-mail: sales@omega.co.uk

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WARNING: These products are not designed for use in, and should not be used for, human 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 in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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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.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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