CE

User's Guide

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PX293 Series
Liquid Low Differential Pressure Transmitter

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INSTALLATION OF PRESSURE TRANSMITTERS
PX293 Series

The PX293 Series transmitters measure low differential pressures of gases or liquids compatible with 316 type stainless steel. The normal operating temperature range is from 0°C to 50°C (32°F to 122°F), and the normal humidity range from 10% to 90% R.H.

Remove the cover to gain access to the two mounting holes. These holes are suitable for #8 (4mm) max. screws.

Connections to the fluid lines are by means of 1/8-28 Female NPT ports.

Make sure the operating static pressure does not exceed the values shown in the table below. The maximum safe momentary overpressure at any port should not exceed 2x the maximum operating static pressure.

STANDARD PRESSURE RANGES								
ENGLISH UNITS			METRIC UNITS					
PRES. CODE	DIFF. PRESS. psid	OPER. STATIC PRESS psi	PRES. CODE	DIFF. PRESS. kPa	OPER. STATIC PRESS. kPa	PRES. CODE	DIFF. PRESS. bar	OPER. STATIC PRESS. bar
31E	0 - 6		31P	0 - 50		31B	0 - 0.5	
32E	0 - 10	0 - 100	32P	0 - 75	0 - 700	32B	0 - 0.75	0 - 7.0
33E	0 - 15		33P	0 - 100		33B	0 - 1.0	
34E	0 - 30		34P	0 - 200		34B	0 - 2.0	
35E	0 - 60		35P	0 - 500		35B	0 - 5.0	
36E	0 - 100	0 - 300	36P	0 - 750	0 - 2000	36B	0 - 7.5	0 - 20
37E	0 - 150		37P	0 - 1000		37B	0 - 10.0	
38E	0 - 200		38P	0 - 1500		38B	0 - 15.0	

Electrical connections are by means of pluggable terminal strips, rated at 250 Vac, with a wire range from 14 to 26 AWG.

Zero and Span Adjustment

The transmitter may be re-zeroed and re-spanned if a permanent drift is noted. Vent both pressure ports to atmosphere before recalibrating the transmitter,

A. Voltage Output Units (PX293-XXXXD5V): Connect a voltmeter across the signal terminals (see Figure 1 or Figure 2, respectively), and adjust the ZERO po-tentiometer R2 until the voltage reads 0.01V. Next, apply the full rated differential pressure to the high pressure port and adjust the SPAN potentiometer R1 until the output reading is 5.00V.

B. Current Output Units (PX293-XXXXDI): Connect an ammeter in the loop (see Figure 3 or Figure 4, respectively), and adjust the ZERO potentiometer R2 until the ammeter reads 4.00mA. Next, apply the full rated differential pressure to the high pressure port and adjust the SPAN potentiometer R1 until the output reading is 20.00 mA.

Re-spanning the transmitter requires a source of pressure of satisfactory accuracy.
Check the zero reading again for accuracy, and repeat the above steps if necessary.
Potentiometer R3 should not normally be adjusted unless one of the pressure sensors has been replaced and the span accuracy of the instrument is affected by changes in the static pressure.

VOLTAGE OUTPUT UNITS (PX293-XXXXD5V)

This transmitter is powered by an external power supply between 11 and 32Vdc (14Vdc minimum for 10V output), the current drawn is less than 10mA.

The output voltage is limited to about 5.3V for the 0-5V transmitter and about 10.6V for the 0-10V transmitter if the differential pressure exceeds the range of the transmitter. Short-circuiting the signal terminals will not damage the transmitter. Figure 1 shows typical transmitter wiring.

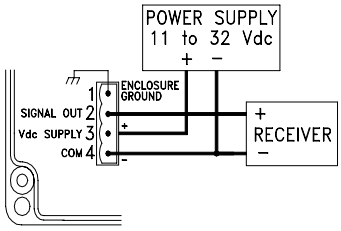

Figure 1

CAUTION: REVERSAL OF THE "VDC IN" AND "SIGNAL OUT" MAY RESULT IN PERMANENT DAMAGE TO THE TRANSMITTER.

CURRENT OUTPUT UNITS (PX293-XXXXDI)

This is a 2-wire, 4-20 mA pressure transmitter which requires an external DC power supply of 11 to 32 Vdc to power the loop. The supply voltage should not exceed 32 Vdc (see Figure 2).

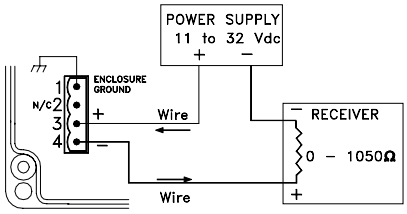

Figure 2

The following graph (see Figure 3) illustrates the maximum wire and receiver resistances as a function of supply voltage. For example: the total loop resistance should not exceed 650 Ohms for a typical supply voltage of 24 Vdc.

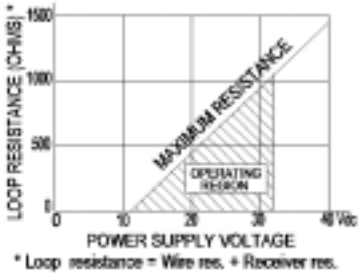

Figure 3

The standard transmitter is current-limited to about 3.85 mA at the low end and 25 mA at the high end. An internal diode protects the transmitter against reversal of polarity (there is no current flowing through the loop if the leads are reversed).

MADE IN USA

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.

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 it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS 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.

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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