

User's Guide

CE



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MODEL PX2670 Low Pressure Transducers and Transmitters



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The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

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

General Information

The PX2670 Series pressure transducers and transmitters sense differential pressure and gage (static) pressure and convert this pressure difference to a proportional high level analog output for both unidirectional and bidirectional pressure ranges. Two versions are offered: the voltage model transducer with 0 to 10 VDC output and the current model transmitter with 4 to 20 mA output.

Environmental Conditions

The PX2670 Series is designed to be operated and stored in the following environmental conditions:

Temperature - The PX2670 is designed to operate and be stored with the following temperature limitations:

Operating:	0 to 150°F (-18 to 65°C)
Storage:	-65 to 180 °F (-54 to 82°C)

Position Effect:

Range	Zero Offset
0 to .1" WC	2.1% FS
0 to 1" WC	.22% FS
0 to 5" WC	.14% FS
0 to 30" WC	.06% FS

Electrical Connections

Wiring is through a standard PG13.5 cable strain relief. Wiring terminations are identified on the circuit board below the terminal strip (see Figure 1). To access the terminal strip, remove the cover by unscrewing the 2 captive screws on top of the case.

Voltage Models

The voltage model is a 3-wire circuit. The standard voltage model can operate from either 24 VAC or 24 VDC excitation with a 0 to 10 VDC output. The input tolerances are as follows:

24 VAC can operate from 9 to 30 VAC
24 VDC can operate from 12 to 40 VDC

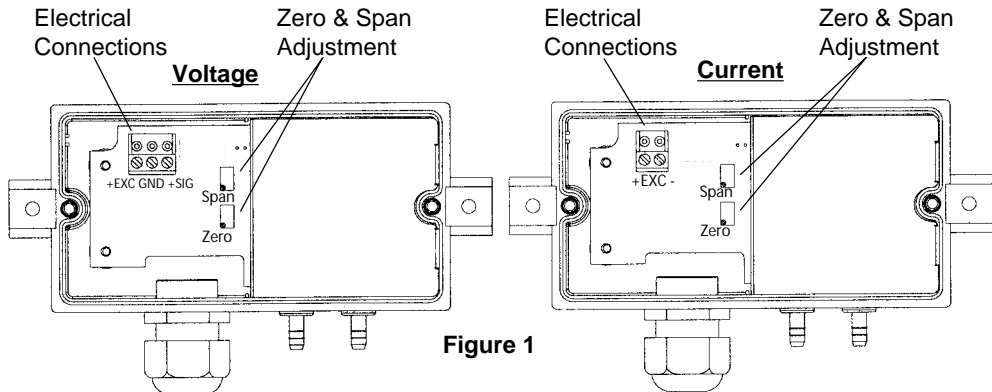
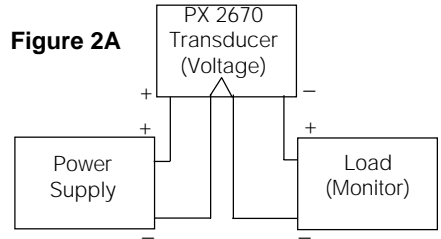
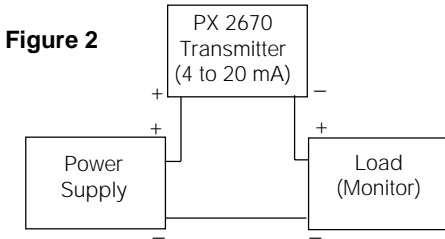


Figure 1

The Model 267 voltage output is a 3-wire circuit, with three terminals available for wiring (see Figure 1). The -Excitation and -Output are commoned on the circuit (see Figure 2A). The 267 voltage output can operate from either AC (9-30 VAC) or DC (12-40 VDC) excitation. The 267 has a 0-10 VDC output, calibrated at the Factory.



Current Models

The current output transmitters are true 2-wire (See Figure 2), 4-20 mA current devices and deliver rated current into any external load of 0-800 ohms. The 4-20 mA current units are designed to have current flow in one direction only - please observe polarity. The PX2670 can operate over a voltage range of 9 to 30 VDC. It has been factory calibrated at 24 VDC into a 250 ohm load. The minimum and maximum power supply must be capable of delivering these voltages to the PX2670. Thus, the minimum and maximum power supply calculation is shown and depicted in Figure 4.

MIN Supply Voltage: $9 + 0.02 \times (\text{resistance of receiver plus line})$

MAX Supply Voltage: $30 + .004 \times (\text{resistance of receiver plus line})$

Mounting and Pressure Fittings

Mounting

The PX2670 Series are designed to be mounted with the two holes located on the base of the housing. The holes are sized to accept a #8 screw.

Fittings

Two (2) 3/16" O.D. pressure fittings are supplied for pressure signal connection with a 1/4" push on tubing. Both positive (high) and negative (low) pressure ports are located on the bottom face side of the unit. For best results (shortest response time), 3/16" I.D. tubing is suggested for tube lengths up to 100 feet long, 1/4" I.D. for tube lengths up to 300 feet long, and 3/8" I.D. for tubing lengths up to 900 feet. The high and low ports are labeled next to each respective port (see Figure 3).

Calibration

All PX2670 Series pressure transducers and transmitters are factory calibrated and should require no field adjustment. However, both zero and span adjustments are accessible under the cover of the unit (see Figure 1), below and to the right of the terminal strip. Whenever possible, any zero and span adjustments should be corrected by software in the user's control system. Use the zero and span adjustments only if necessary. The PX2670 Series are calibrated in the vertical position at the factory (baseplate vertical). For use in other orientations, position the unit and follow the zero adjustment procedure listed below. Pressure ranges are fixed and cannot be changed in the field. If a range change is required, contact the factory for a replacement PX2670 model with the appropriate pressure range.

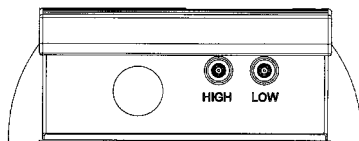


Figure 3

Zero Adjustment - Voltage

While monitoring the voltage between the positive output (+OUT) and common (-OUT), and with both ports open to atmosphere, the zero may be adjusted. For unidirectional pressure ranges, turn the zero adjustment screw until a reading of 0.050 VDC is achieved. For bidirectional pressure ranges set to 5 VDC.

Zero Adjustment - Current

While monitoring the current output with both ports open to atmosphere, the zero may be adjusted. For unidirectional pressure ranges, turn the zero adjustment screw until a reading of 4 mA is achieved. For bidirectional pressure ranges, set the zero to 12 mA.

Span Adjustment - Voltage

Span or full scale output adjustments should only be performed by using an accurate pressure standard (electronic manometer, digital pressure gage, etc.) with at least comparable accuracy as the PX2670 Series. With full scale pressure applied to the high pressure port, adjust span for full scale electrical output of 10.05 VDC.

Example 1: Unidirectional pressure range of 0 to 1" WC and 0.05 to 10.05 VDC output. Apply 1" WC to the high pressure port and adjust span as close as practical to 10.05 VDC.

Span Adjustment - Current

Span or full scale output adjustments should only be performed by using an accurate pressure standard (electronic manometer, digital pressure gage, etc.) with at least comparable accuracy as the PX2670 Series. With full scale pressure applied to the high pressure port, adjust span for full sale electrical output of 20mA.

Example 1: Unidirectional pressure range of 0 to 1" WC
Apply 1" WC to the high pressure port and adjust span as close as practical to 20 mA.

Example 2: Bidirectional pressure range of ± 5 " WC
Apply 5" WC to the high pressure port and adjust span as close as practical to 20 mA.
Apply -5" WC to the high pressure port and adjust span as close as practical to 4 mA.

Loop Power Supply
vs.
Loop Resistance for 4 to 20mA Transmitters

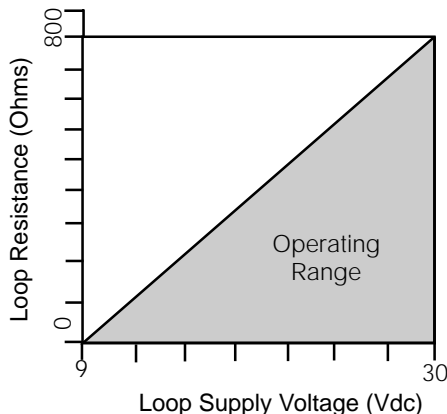


Figure 4

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 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.

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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/INQUIRES

Direct all warranty and repair requests/inquires 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. This affords our customers the latest in technology and engineering.

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