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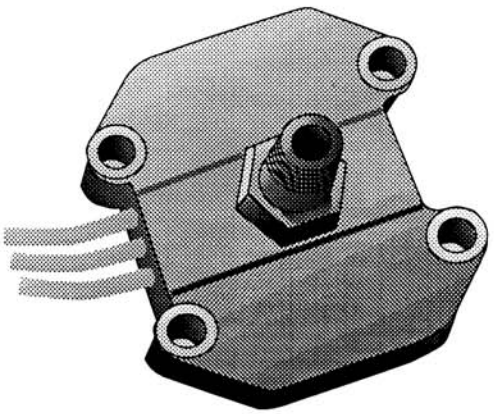
OMEGA®

PX240A Series

Pressure Transducers



INSTRUCTION SHEET

M0263/1100

The OMEGA®PX240A Pressure Transducer Series is available in gage type to measure pressures ranging from +/- 2.5 psi to 0-250 psi. The sensor is housed in a rugged stainless steel body. Media compatibility for oils, fuels, gasoline, petroleum-based lubricants, hydraulic fluids, alcohol, water and air is provided by internal Buna-N O-ring seals. Termination is by 300mm (12 in.), colour coded 18 gage lead wires.

FEATURES

- 8.0 Vdc Excitation
- 12 inch Leadwires
- -40 to +85°C
- 1 to 6 Vdc output
- Temperature compensated
- Rugged low profile, easy-to-mount
- Buna-N seals

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.

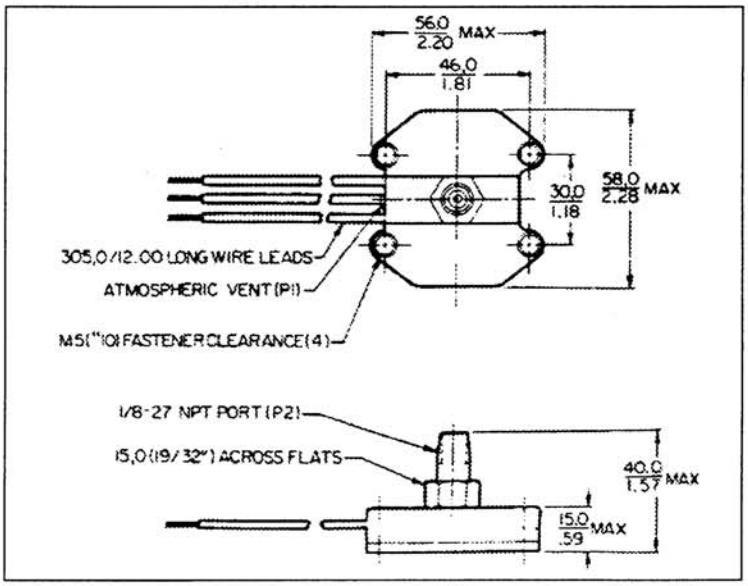
c) In severe cases, there will be no output.

MOUNTING: Screw-in (1/8-27 NPT port) or flat-pack (M5 or #10 fasteners)

WIRING	
Vs	Red
Common	Black
Output	Green

WARNING: Damage may result from reversal of supply and common connections.

MOUNTING DIMENSIONS (for reference only)



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It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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.

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.

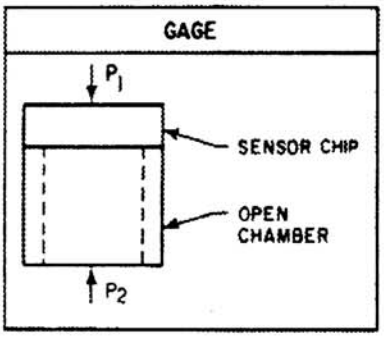
OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

PX243A SPECIFICATIONS at 8.0 ±0.01VDC Excitation. 25°C (unless otherwise specified)

	Pressure Ranges (psi)			
Parameter	**±2.5**	**±5.0**	**±15**	**Units**
Sensitivity per psi, typ.	1.00	0.50	0.177	V
Overpressure, max.	20	15	50	psi
Linearity (Best Fit Straight Line)				
P2 > P1, max.	±1.50	±1.50	±1.50	%F.S.
P2 < P1, max.	±0.75	±0.75	±0.75	
Temperature Error. Combined Null and Sensitivity Shift				
25° to -18°, 25° to 63°C, max.	±1.00	±1.00	±1.00	%F.S.O.
25° to -40°, 25° to 83°C, typ.	±1.50	±1.50	+1.50	

GAGE TYPE TRANSDUCERS

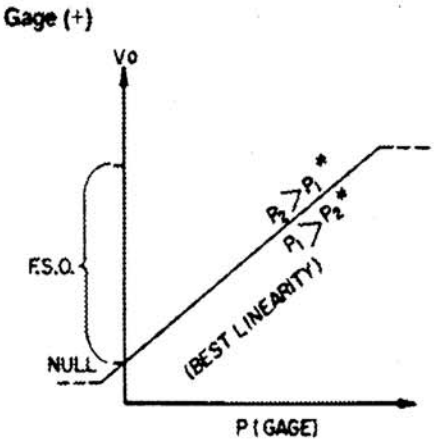
Gage devices measure one pressure with respect to another. In gage devices, P1 is vented to atmospheric pressure and the measurand is applied to P2.

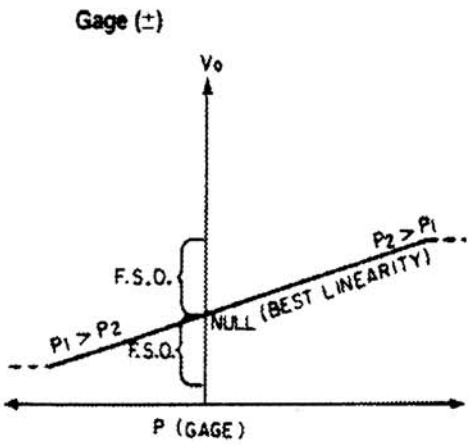


TEMPERATURE ERROR

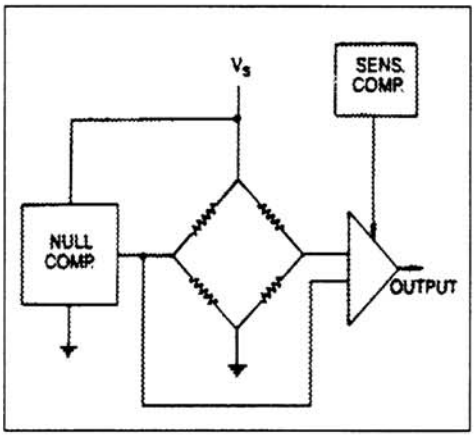
Temperature error is calculated with respect to 25°C and expresses the deviation that could occur as temperature is raised or lowered to limits indicated.

Typical (as used herein): the error is within ±1 standard deviation (±δ) of the nominal specified value, as computed from the total population.





Transducer Schematic



PX240A General Specifications*

Parameter		Min.	Typ.	Max.	Units
Full Scale Output (F.S.O.)**	(1) (2)	4.85	5.00 ±2.5	5.15	V
Null Offset	(1) (2)	0.95 3.45	1.00 3.50	1.05 3.55	V
Output at Full Pressure	(3)	5.80	6.00	6.20	V
Response Time				1	msec
Excitation		7.00	8.00	16.00	Vdc
Supply Current			8.00	20.00	mA
Output Current Source Sink		 10.0 5.0			 mA
Ratiometricity 7 to 8 or 8 to 9 V 8 to 12 V			 ±0.50 ± 2.00		 % F.S.O.
Stability over I year			± 1.00		% F.S.O.
Shock	MIL-STD-202, Method 213B (100 G, half sine)				
Vibration	MIL-STD-202, Method 204C (10 to 2,000 Hz at 10 G)				
Temperature Compensated Operating Storage	 -18 to +63°C (0 to +145°F) -40 to +85°C (-40 to +185°F) -55 to + 125°C (-67 to +257°F)				
Media Compatibility	Limited only to those non-caustic media which will not attack the Stainless Steel housing; silicon chip; glass; or one of the several O-ring materials.				
Weight	200 grams (7oz)				
Termination	300 mm (12 in.) long #18 AWG leadwires				
Output Ripple	None, dc device				
Short Circuit Protection	Output may be shorted indefinitely to ground				
Ground Reference	Supply and Output are common				

*General specification at 8.0 ±0.01 Vdc Excitation, 25°C inless otherwise noted)

**F.S.O. is the algebraic difference between end points (output at null and full pressure). The F.S.O. will vary proportionately with supply voltage (sensor not internally regulated).

(1) Positive (or negative) pressure measurement.
(2) Positive and negative pressure measurement.
(3) Output at positive (or negative) pressure.

PX241A/PX242A SPECIFICATIONS at 8.0 ± 0.01 VDC Excitation, 25°C (unless otherwise noted)

	Pressure Ranges (psi)							
Parameter	**0.5**	**0-15**	**0-30**	**0-60**	**0-100**	**0-150**	**0-250**	**Unils**
Sensitivity per psi, typ.	1.00	.330	.167	.083	.050	.033	.020	V
Overpressure. max.	20	45	60	100	200	300	500	psi
Unearity. max.	±1.5	±1.5	±11.5	±0.5	±0.5	±05	±0.5	%F.S.O.
Temperature Error, Combined Null & Sensitivity Shift								%F.S.O.
25° to -18°,25° to 63°C. max.	±1.5	±1.0	±1.0	±1.5	±1.0	±1.5	±1.0	
25° to -41° 25° to 85°C, typ.	±3.0	±2.0	±2.0	+3.0	±2.0	±3.0	±2.0	