

# User's Guide



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## **PX791 & PX792 Series Sanitary Pressure Transducer**



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**USA:** One Omega Drive, P.O. Box 4047  
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info@omega.com.mx

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Toll Free in Benelux: 0800 0993344  
e-mail: nl@omega.com

**Czech Republic:** Rudé armády 1868, 733 01 Karviná  
TEL: +420 (0)69 6311899 FAX: +420 (0)69 6311114  
Toll Free in Czech Rep.: 0800-1-66342 e-mail: czech@omega.com

**France:** 9, rue Denis Papin, 78190 Trappes  
TEL: +33 (0)130 621400 FAX: +33 (0)130 699120  
Toll Free in France: 0800-4-06342  
e-mail: france@omega.com

**Germany/Austria:** Daimlerstrasse 26, D-75392 Deckenpfronn, Germany  
TEL: +49 (0)7056 3017 FAX: +49 (0)7056 8540  
Toll Free in Germany: 0800 TC-OMEGA<sup>SM</sup>  
e-mail: germany@omega.com

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

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.

# PX791 & PX792 SERIES OMEGA® SANITARY PRESSURE TRANSDUCER INSTRUCTION SHEET

## WARNING!

This instrument is susceptible to damage when exposed to static electrical charges. To avoid damage to the transducer observe the following:

- Ground the body of the transducer BEFORE making any electrical connections
- When disconnecting, remove the ground LAST.

**NOTE:** The braided shield and drain wire in the cable (if supplied) is not connected to the transducer body, and is not a suitable ground.

**CAUTION:** Pressure spikes in excess of the rated overpressure capability of the transducer may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing element(s).

### Mounting

Although the unit can withstand normal vibration without damage or significant output effects, it is always good practice to mount the transducer where there is minimum vibration. Be sure to use a gasket that does not interfere with the sanitary diaphragm. If the gasket I.D. is smaller than 1.50 inches, an offset due to clamping force will occur.

### Power Supply

The supply voltage for the 1-5 and 1-6 Vdc output transducers must be within the range of 10 to 36 Vdc. The maximum supply voltage for a 4-20mA current output transducer is 36 Vdc while the minimum supply voltage is dependent upon the loop resistance of the circuit. Refer to Figure 1. The loop supply voltage vs. loop resistance shows the minimum supply voltage ( $V_{\min}$ ) required for a given loop resistance ( $R_{\text{LOOP}}$ ).

### Excitation (Ratiometric Output Only)

For proper operation a voltage within the range of 5 to 10 Vdc must be applied between the transducer's supply terminals.

### Noise

For minimum noise susceptibility, avoid running the transducer's cable in a conduit that contains high current AC power cables. Where possible avoid running the cable near inductive equipment.

### Shield Wiring

Connect the braided shield to the guard terminal on the reading instrument (meter, etc.) if available or to ground or to the power supply negative terminal.

### Adjustment Potentiometers

The zero and span pots are accessible through the top of the case. Loosen the four screws and separate the top carefully. The zero pot is marked with a white dot.

### Vent Tube

The cable will have a clear Teflon vent tube that's required at pressure below 500 psi to provide atmospheric reference. The open end should be placed in a dry area.

### Life Support Policy

These products are not authorized for use as critical components in life support devices or systems. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

### PX791 & PX792 Series

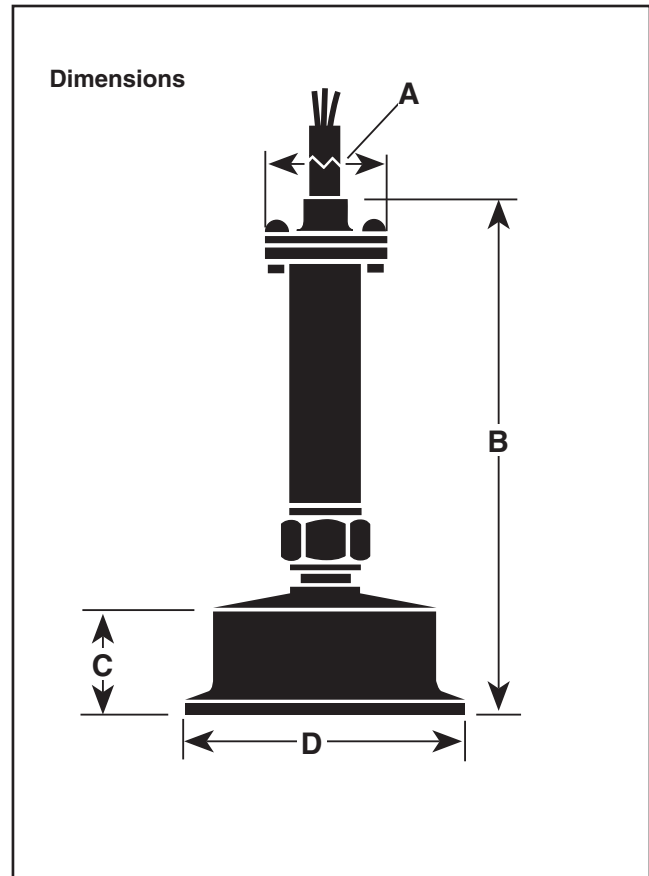
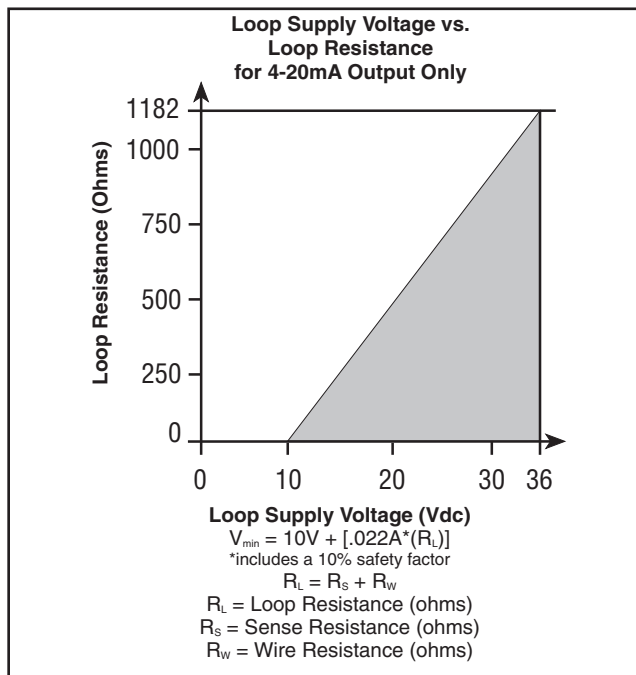





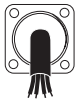








Figure 1. Loop Supply Voltage vs. Loop Resistance



MODEL	A	B	C	D	SERIES
S15	0.8	4.7	0.9	2.0	PX791
S20	0.8	4.7	0.9	2.5	PX792

## PX791 & PX792 SANITARY TRANSDUCERS – ELECTRICAL CONNECTIONS

Voltage Output Units 1-5, 1-6 Vdc	
	<b>CABLE TYPE F2</b> Red = + Power White = Common Green = Output
	<b>CABLE TYPE C1</b> Red = + Power White = Common Green = Output
	<b>HIRSCHMANN TYPE</b> PIN-1 = + Power PIN-2 = Common PIN-4 = Output
	<b>BENDIX 4-PIN, 6-PIN</b> Pin A = + Power Pin B = Output Pin D = Common
Current Output Units 4-20mA	
	<b>CABLE TYPE F2</b> Red = + Power Black = Power
	<b>CABLE TYPE C1</b> Red = + Power Black = Power
	<b>HIRSCHMANN TYPE</b> Pin-1 = + Power Pin-2 = Power
	<b>BENDIX 4-PIN, 6-PIN</b> Pin A = + Power Pin B = Power
Ratiometric (mV/V)	
	<b>CABLE TYPE F2</b> Red = + Power White = - Power Green = + Output Black = - Output
	<b>CABLE TYPE C1</b> Red = + Power White = - Power Green = + Output Black = - Output
	<b>HIRSCHMANN TYPE</b> Pin A = + Power Pin B = + Output Pin C = - Output Pin D = - Power
	<b>BENDIX 4-PIN, 6-PIN</b> Pin A = + Power Pin B = - Power Pin C = + Output Pin D = - Output Pin E = Shunt Cal. Pin F = Shunt Cal.

## WARNING: READ BEFORE INSTALLATION

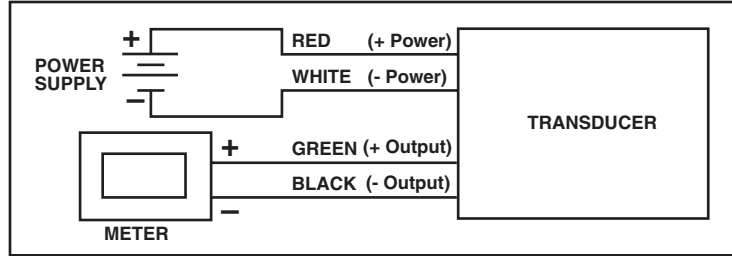
The diaphragm is very sensitive and fragile! Do not let anything touch the diaphragm but the fluid to be measured. Fluid hammer and surges can destroy any pressure transducer and must always be avoided. A pressure snubber should be installed to eliminate the damaging hammer effects. Fluid hammer occurs 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.

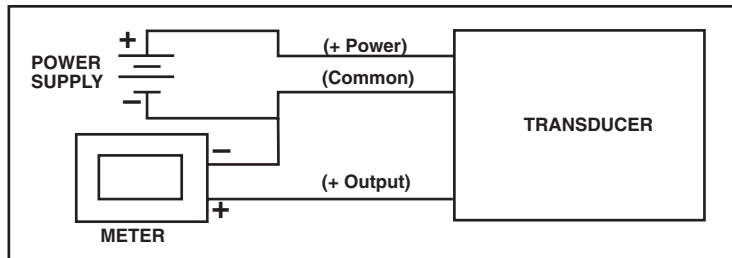
Symptoms of fluid hammer and surge's damaging effects:

- Pressure transducer exhibits an output at zero pressure (large zero offset). If zero offset is less than 10% FS, user can usually re-zero transducer, install proper snubber and continue monitoring pressures.
- Pressure transducer output remains constant regardless of pressure.
- In severe cases, there will be no output.

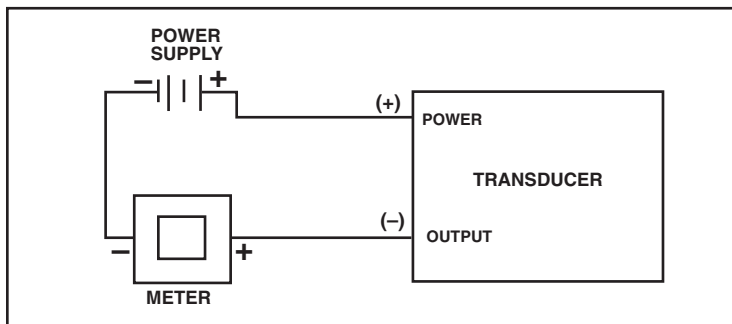
# WIRING DIAGRAMS FOR ALL TRANSDUCERS



**4-Wire Ratiometric (mV/V)**



**3-Wire Voltage**



**4-20mA**

## 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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