

# User's Guide

CE



An OMEGA Technologies Company

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MODEL PX2150  
Ultra High Purity Transducers  
and Transmitters



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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.

## General Information

The PX2150 Series Ultra High Purity Pressure Transducer and Transmitter has been factory tested and calibrated prior to shipment. Specific details of the performance not listed herein can be obtained from the product specification bulletin.

## Environmental Conditions

The PX2150 Series are designed to be operated and stored under the following environmental conditions:

### **Temperature**

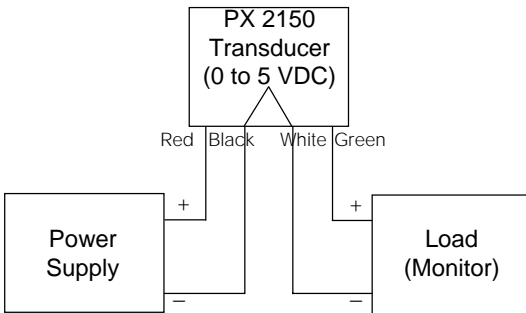
Operating: -40 to 180°F (-40 to 82°C)  
Storage: -65 to 260°F (-54 to 126°C)

## Electrical Connections

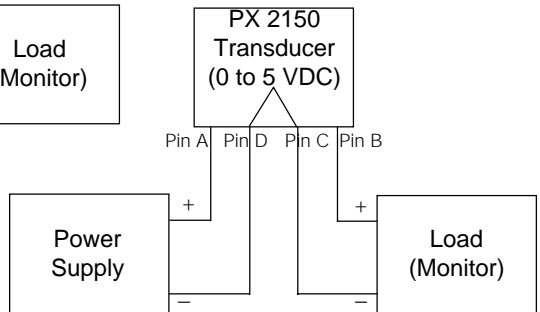
### **Voltage Output Transducers**

The voltage output transducers are a three (3) wire device where the negative output and excitation are commoned together internally on the PX2150 circuit board. Four (4) wires are provided for the users convenience. The PX2150 is provided with either a 6 foot cable or a bayonet style connector. The connections are shown below and depicted in Figure 1A and 1B:

<u>Cable Pin</u>	<u>Bayonet Pin</u>	<u>Function</u>
Red	A	+ Excitation; connects to a 12 VDC+/-10% Power supply
Green	B	+ Output; connects to controller or monitoring device
White	C	- Output; connects to controller or monitoring device
Black	D	- Excitation; connects to return of 12 VDC power supply
Shield		Connects to system or Earth ground



**Figure 1A**



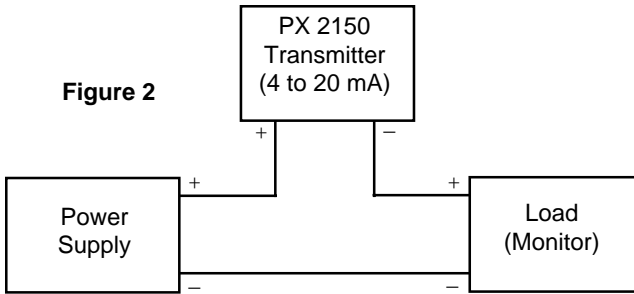
**Figure 1B**

## Current Output Transmitters

The current output transmitters are a true two (2) wire device and delivers current into any external load of 0 to 800 ohms (see Figure 2). The unit has been factory calibrated at 24 VDC into a 250 ohm load. The voltage limits and power supply requirements are shown in Figure 3. The PX2150 has a 6ft. cable where red is positive and black is negative. For those units with the Bayonet style connector, Pin A is positive and Pin B or Pin D is negative.

$$\text{Min Supply Voltage (VDC)} = 16 + 0.02 \times (\text{Resistance of receiver plus line})$$

$$\text{Max Supply Voltage (VDC)} = 30 + 0.004 \times (\text{Resistance of receiver plus line})$$

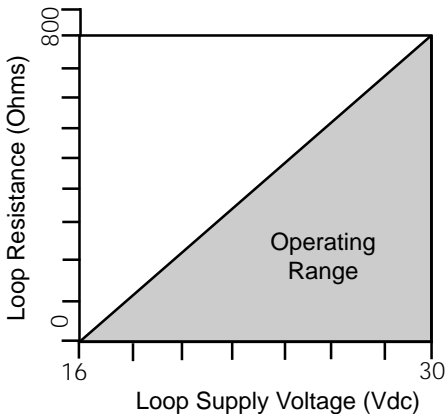


Loop Power Supply

vs.

Loop Resistance for 4 to 20mA Transmitters

**Figure 3**



## Mounting and Pressure Fitting

### **Mounting**

The PX2150 is mounted via its pressure fitting. No other provisions are made for mounting.

### **Fittings**

The PX2150 comes standard with a #4 male Swivel Face Seal.

## Calibration

The PX2150 Series transducers and transmitters are tested and calibrated to the specific input pressure verses output voltage so little or no field calibrating is necessary. Zero and span adjustments can be made by turning the rotatable cover to expose zero and span pots.

### **Zero Adjustment – Voltage**

For Gage units, monitor the voltage between the positive output (+ OUT) and common (-OUT). Adjust the output until a reading as close as practical to 0.20 VDC is achieved.

For Compound calibrations, open the pressure port to atmosphere and monitor the voltage between the positive output (+ OUT) and common (- OUT). Table 1 shows the voltage level required to be read at 0 psig. Turn the zero potentiometer until this voltage level, or as close as practical, is achieved.

### **Zero Adjustment – Current**

For Gage units, monitor the current output and turn the zero adjustment screw until a reading as close as practical to 4 mA is achieved.

For Compound calibrations, open the pressure port to atmosphere and monitor the current output of the device in test. Table 1 shows the relationship between the current level and the output at 0 psig. Adjust the zero potentiometer until this level, or as close as practical, is achieved.

TABLE 1

Compound Range	Voltage Output	Current Output
-14.7 to 50 psig	1.336 VDC	7.64 mA
-14.7 to 100 psig	0.841 VDC	6.05 mA
-14.7 to 250 psig	0.477 VDC	4.89 mA
-14.7 to 500 psig	0.343 VDC	4.46 mA
-14.7 to 1000 psig	0.272 VDC	4.23 mA
-14.7 to 3000 psig	0.224 VDC	4.08 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 PX2150 Series. With full scale pressure applied to the pressure port, adjust span for full scale electrical output of 5.2 VDC.

Example 1: Pressure range of 0 to 100 psi and 0.2 to 5.2 VDC output  
Apply 100 psi to the pressure port and adjust span as close as practical to 5.200 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 PX2150 Series. With full scale pressure applied to the pressure port, adjust span for full scale electrical output of 20 mA.

Example 1: Pressure range of 0 to 250 psi and 4 to 20 mA output  
Apply 250 psi to the pressure port and adjust span as close as practical to 20 mA.

## 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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