



# Operating Instructions

## Model 216/C216 Ultra High Purity Transducers

### General Information

Your Setra pressure transducer or transmitter has been carefully tested and calibrated before shipment. Specific performance information is listed on the specification bulletin for the transducer.

### Installation

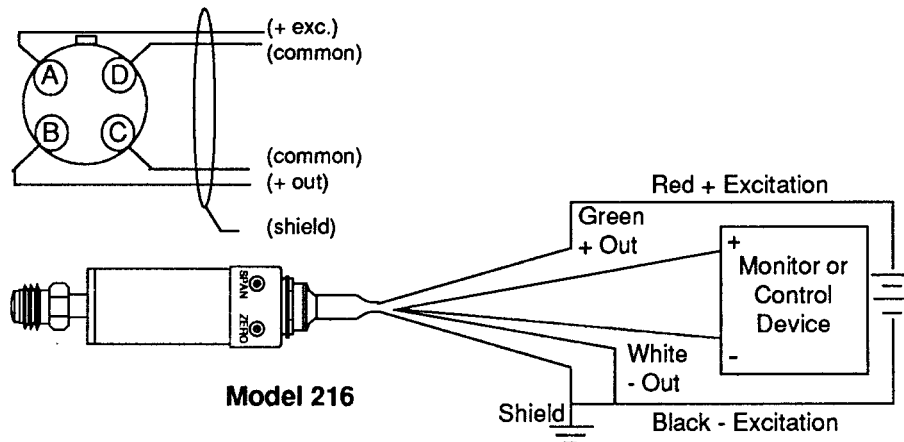
**Environment** - These transducers and transmitters are designed to be used with any gas or liquid compatible with 316L stainless steel. Never totally submerge in any liquid. The operating temperature, based on the limits of the electronics, is -40∞ to 250∞F.

**Venting** - Model 216/C216 transducers and transmitters are vented through the cable.

### Electrical Connections

The Model 216 (0.2 - 5.2 VDC) voltage output transducer is supplied with a 6 foot multiconductor cable, which should be connected as follows:

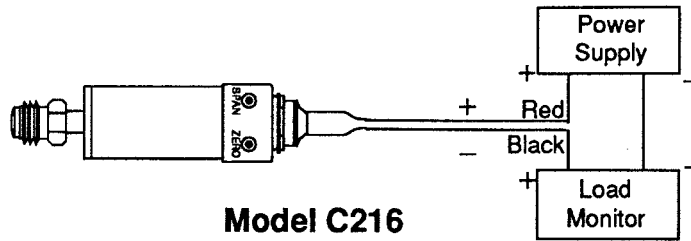
Cable		Bendix pin
Red	= + Excitation; connect to 12 VDC ±10% power supply	A
Green	= + Output; connect to controls or monitor	B
White	= - Output; connect to controls or monitor	C
Black	= - Excitation; connect to return of 12 VDC power supply	D
Shielding	= Connect to system or earth ground	



**Note:** Model 216 can be wired as a three wire device by connecting - output, - excitation and shield to a common ground. However, accuracy will be reduced with increase in load resistance.

The Model C216 (4-20 mA) is a true 2-wire current output transmitter and delivers rated current into any external load of 0-800 ohms. The C216 has a 6 foot cable where red is positive and black is negative. For units with the Bendix Connector pin A is positive and pin B or pin D is negative.

Current must flow in one direction only — **Please observe polarity.** We suggest that the cable shield be connected to the system's loop circuit ground for optimum electrical noise rejection.



### Calibration

All Setra pressure transducers and transmitters are carefully calibrated to the specific input pressure range vs. output voltage or current at the factory 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.

Current output transmitters (4-20 mA) are factory calibrated using a 250 ohm load at 24 VDC. Zero and span adjustments are approximately  $\pm 1.0$  mA, individually.

Voltage output transducers are factory set for an output range of 0.2 - 5.2 VDC. The zero pressure output is set to 200 mV  $\pm 25$  mV and can be adjusted between approximately 0.1 V and 1.0 V. Span can be adjusted approximately  $\pm 1.0$  V about the nominal 5.2 V  $\pm 50$  mV span.

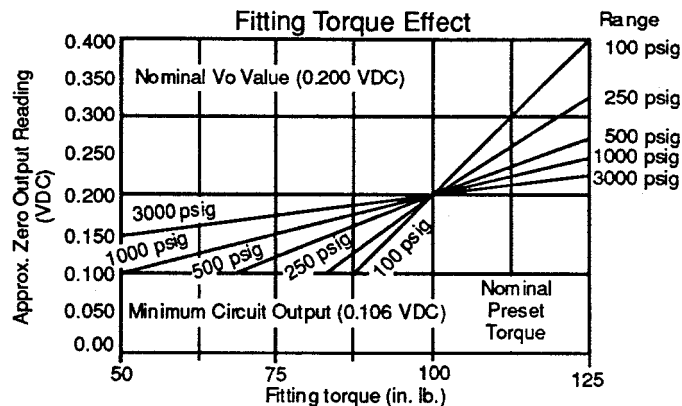
NOMINAL "INSTALLED" OUTPUT AT ATMOSPHERIC PRESSURE (0 PSIG)		
Compound Range	Model 216 (Voltage)	Model C216 (mA)
-14.7 to 100	.841	6.05
-14.7 to 250	.477	4.89
-14.7 to 500	.343	4.46
-14.7 to 1000	.272	4.23
-14.7 to 3000	.224	4.08

### FITTING TORQUE EFFECT

The Model 216 design features a one-piece/weld-free sensing diaphragm located just behind the sealing bead of its Face Seal fitting to minimize dead volume. The sensing diaphragm location (relative to the sealing bead and nut bearing flange) minimizes the zero shift due to making the Face Seal connection; however, this effect cannot be completely eliminated.

Model 216 transducers and transmitters are calibrated at the factory with the fitting torqued to 100 in. lbs.  $\pm 10$  in. lbs. (approx. finger tight plus 1/8 turn). When disconnected for shipment, the zero output reading (0.2 VDC) shifts downward an amount depending on the full scale pressure range of the unit. Lower range units shift the most (see graph). As a result, the zero will appear to be out of tolerance if checked without the unit installed. Linearity and span remain within tolerance throughout the fitting torque range. Only minor zero adjustment may be necessary after installation.

Note: Overtightening beyond 100 in. lb. will cause the zero to increase beyond the nominal 0.2 VDC output requiring minor zero adjustment. Consult a Setra applications engineer for additional information.



## RETURNING PRODUCTS FOR REPAIR

Please contact Setra (1-800-257-3872, 978-263-1400) before returning unit for repair to review information relative to your application. Many times, only minor field adjustments may be necessary. When returning a product to Setra, the material should be carefully packaged and shipped prepaid to:

Setra Systems, Inc.  
159 Swanson Road  
Boxborough, MA 01719-1304  
Attn: Repair Department

To assure prompt handling, please supply the following information and include it inside the package of returned material:

1. Name and phone number of person to contact.
2. Shipping and billing instructions.
3. Full description of the malfunction.
4. Identify any hazardous material used with product.

*Notes: Please remove any pressure fittings and plumbing that you have installed and enclose any required mating electrical connectors and wiring diagrams.*

Allow approximately 3 weeks after receipt at Setra for the repair and return of the unit. Non-warranty repairs will not be made without customer approval and a purchase order to cover repair charges.

### Calibration Services

Setra maintains a complete calibration facility that is traceable to the National Institute of Standards & Technology (NIST). If you would like to recalibrate or recertify your Setra pressure transducers or transmitters, please call our Repair Department at 1-800-257-3872 (978-263-1400) for scheduling, cost and turnaround estimates.

### LIMITED WARRANTY AND LIMITATION OF LIABILITY

SETRA warrants its products to be free from defects in materials and workmanship, subject to the following terms and conditions:

Without charge, SETRA will repair or replace products found to be defective in materials or workmanship within the warranty period; provided that:

- a) the product has not been subjected to abuse, neglect, accident, incorrect wiring not our own, improper installation or servicing, or use in violation of instructions furnished by SETRA;
- b) the product has not been repaired or altered by anyone except SETRA for its authorized service agencies;
- c) the serial number or date code has not been removed, defaced, or otherwise changed; and
- d) examination discloses, in the judgment of SETRA, the defect in materials or workmanship developed under normal installation, use and service;
- e) SETRA is notified in advance of and the product is returned to SETRA transportation prepaid.

Unless otherwise specified in a manual or warranty card, or agreed to in a writing signed by a SETRA officer, SETRA pressure and acceleration products shall be warranted for one year from date of sale.

The foregoing warranty is in lieu of all warranties, express, implied or statutory, including but not limited to, any implied warranty of merchantability for a particular purpose.

SETRA's liability for breach of warranty is limited to repair or replacement, or if the goods cannot be repaired or replaced, to a refund of the purchase price. SETRA's liability for all other breaches is limited to a refund of the purchase price. In no instance shall SETRA be liable for incidental or consequential damages arising from a breach of warranty, or from the use or installation of its products.

No representative or person is authorized to give any warranty other than as set out above or to assume for SETRA any other liability in connection with the sale of its products.

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