

## 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 or 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.



OPERATING INSTRUCTIONS

MODEL C290

SANITARY PRESSURE TRANSMITTERS

## GENERAL INFORMATION

Your Setra C290 Sanitary Pressure Transmitter has been carefully tested and calibrated before shipment and it should be handled with the same care given any precision instrument. Detailed performance information is listed on the specification bulletin for the transmitter.

The C290 is designed according to 3A Standard, as indicated on etched cover label, for sanitary installations. It has a rugged MICRO-TIG welded stainless steel housing and is exceptionally insensitive to vibration, shock, EMI/RFI interference and other environmental extremes. The C290 is insensitive to the thermal shocks typical of CIP and SIP installations.

## INSTALLATION NOTES

Model C290's should not require adjustment at installation. **If adjustments are made it is important to replace and tighten the zero and span screws (with O-rings) to prevent moisture from entering.**

The C290 is vented through the cable. Connections to the cable should be made in a dry junction box vented to atmosphere. Insure that moisture cannot enter the end of the cable.

The C290 is shipped with a rubber boot over the stainless steel pressure sensing diaphragm to protect the diaphragm during shipment, storage, and handling prior to installation. This boot should not be removed until the transmitter is to be installed and should be used whenever the unit is removed from its installation. **Do not contact the diaphragm with sharp objects, screwdrivers or other mechanical devices.**

**Environment** - The C290 Transmitter is designed to be used with any gas or liquid compatible with 316L stainless steel (316 for ranges > 30 psig). It is designed to be splash and drip proof for wash-down cleaning and can also be completely submerged with the exception of the open end of the electrical cable.

**Cleaning** - The pressure sensing diaphragm will withstand normal high pressure washing and partial vacuums created by fast cooling of steam sterilized tanks. However, be sure not to exceed the proof pressure (listed on specification sheet). In high pressure washing, care should be taken not to spray directly on diaphragm as it could result in exceeding the proof pressure. The C290 can also be cleaned by dipping the diaphragm in a container of cleaning solution or by wiping gently with a soft cloth.

**Temperature Limits** - The operating temperature limits of the C290, based on the limits of the electronics, are -40°F to 260°F.

Thermal Effects	20°F to 180°F range
Zero Shift	± 2.00% F.S./100°F
Span Shift	± 2.00% F.S./100

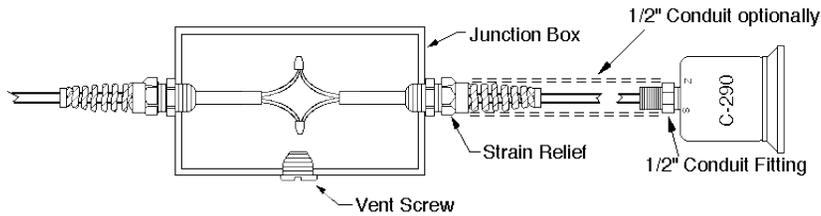
**Mounting** - The C290 will mount directly to a mating tri-clover flange along with a tri-clover type clamp and gasket. (2 inch tri-clover for ranges up to 30 psig and 1.5 inch for higher ranges.) Horizontal mounting is recommended to enable proper cleaning and draining of liquids from sensor cavity.

Note: The output signal is not appreciably affected by clamping forces so it is not necessary to orient the flange circle to any special position for best performance.



**Venting** - The C290 is vented to atmosphere through the cable to achieve best accuracy. This is particularly important for models with pressure ranges below 30 psig. Connections to the cable should be made in a junction box that is vented to atmosphere, with care taken to insure that the end of the cable is not blocked or sealed.

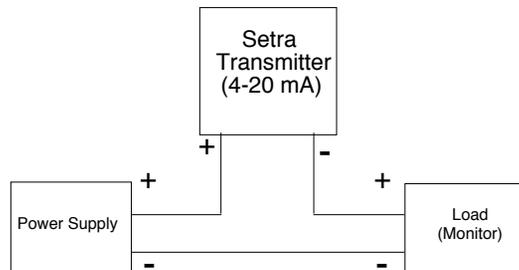
**Junction Box Suggestion** - The following junction box configuration is a recommended method of terminating the C290's signal cable in order to achieve a moisture resistant and vented connection.



	Junction Box	Cable Strain Relief
Part No.	A-533PC1	3237 Heyco Flex Fitting
Dimensions:	4.92" x 2.95" x 2.95"	2.50" Long
Manufacturer:	Hoffman Engineering Co. 900 Ehlen Drive Anoka, MN 55303 (612) 421-2240	Heyco Kenilworth, NJ 07033 (201) 245-0033 (800) 526-4182

1. Drill one 1/2" dia. hole at each end of junction box for cable strain reliefs. Note: if conduit is to be installed, omit one 1/2" hole and drill appropriate hole for conduit.
2. Drill and tap one 1/2"-13 NC hole in bottom of junction box and install loosely one 1/2"-13 NC plastic or stainless steel screw. The clearance between threads serves as a vent for the box.
3. Install cable strain reliefs in 1/2" dia. holes. If using conduit at one end, be sure it is sealed properly against moisture.
4. Mount junction box and install cables.

**Electrical Connections** - The Model C290 (current output) Sanitary Transmitter is a true 2-wire, 4-20 mA current output device and delivers rated current to any external load of 0-800 ohms. The C290 has a two wire cable where **red** is positive and **black** is negative.



The 4-20mA current output circuit is designed to have current flow in one direction only **please observe polarity**. It is suggested that the cable shield be connected to the system loop circuit ground to improve electrical noise rejection.

## CALIBRATION

All Setra pressure transmitters are carefully calibrated to the specific input pressure range vs. output current at the factory so little or no field calibrating is necessary. C290 transmitters (4-20 mA) are factory calibrated using a 250 ohm load at 24 VDC. External zero and span adjustment capability is approximately  $\pm 0.5$  mA, individually. Zero and span adjustments are made by removing the pan head screws and turning the potentiometer screw inside. A jeweler's screwdriver or a .015" x 3/32" flathead screwdriver with a 3" shaft is easiest to use for making zero and span adjustments. It is important to replace the screws after adjustments are made to avoid allowing moisture to enter the transmitter.

## RETURNING PRODUCTS FOR REPAIR

Please contact Setra (1-800-257-3872 or 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  
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 or 978-263-1400 for scheduling, cost and turn around estimates.

For all CE technical questions, contract Setra Systems, USA. EU customers may contact our EU representative Hengstler GmbH, Uhlandstr 49, 78554 Aldingen, Germany (Tel: +49-7424-890; Fax: +49-7424-89500).