



**MODEL 890
SANITARY PRESSURE TRANSMITTER**

RETURN POLICY

Returns are accepted on stock items up to 30 days from date of order. You must contact our Returns Department for a Return Authorization (RA) number. Return the goods - freight prepaid - in the original container and include original packing slip. C. O. D. returns are not accepted. Gems reserves the right to apply restocking charges.

Tel: 860-793-4357

Fax: 860-793-4563

Important Points

- Gems products must be maintained and installed in strict accordance with the National Electrical Code and the applicable Gems Product Instruction Bulletin that covers installation, operating and proper maintenance. Failure to observe this information may result in serious injury or damages.
- Please adhere to the pressure and temperature limitations shown throughout this bulletin. These limitations must not be exceeded. These pressures and temperatures take into consideration possible system surge pressures/temperatures and their frequencies.
- Selection of materials for compatibility with the media is critical to the life and operation of Gems products. Take care in the proper selection of materials of construction, testing is required.
- Our sensors have been designed to resist shock and vibration. However, shock and vibration should be minimized.
- Our sensors must not be field-repaired.
- Physical damage sustained by product may render it unserviceable.

SS2113 Rev. A 01/03



Gems Sensors
One Cowles Road
Plainville, CT 06062-1198
Toll-Free: 1-800-378-1600

GENERAL INFORMATION

Your Gems 890 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 890 is designed according to 3A Standard #37-01 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 890 is insensitive to the thermal shocks typical of CIP and SIP installations.

INSTALLATION NOTES

Model 890'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 890 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 890 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 890 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 890 can also be cleaned by dipping the diaphragm in a container of cleaning solution or by wiping gently with a soft cloth.

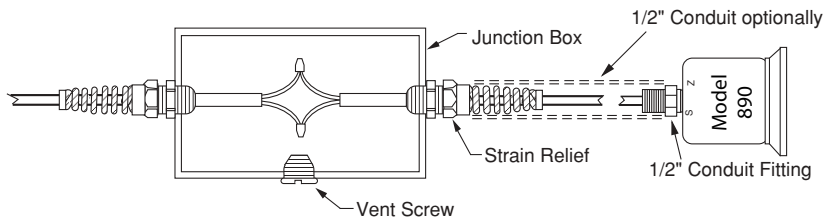
Temperature Limits - The operating temperature limits of the 890, based on the limits of the electronics, are -40°F to 260°F.

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 890 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.) 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 890 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.

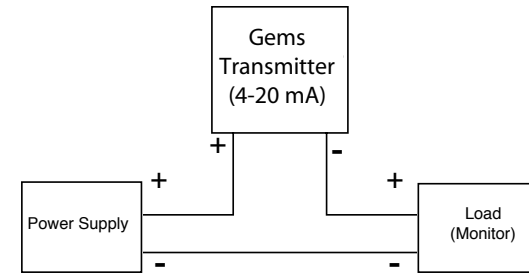
Junction Box Suggestion - The following junction box configuration is a recommended method of terminating the 890's signal cable in order to achieve a moisture resistant and vented connection.



	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 890 (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 890 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 Gems 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. 890 transmitters (4-20 mA) are factory calibrated using a 250 ohm load at 24 VDC. External zero and span adjustment capability is approximately ± 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.