

Model C-290

Sanitary Pressure Transmitter



Applications

- Food Processing
- Dairy and Beverage Processing
- Pharmaceutical Processing
- Liquid Level Control
- Sanitary Pipelines

Benefits

- Negligible Clamping Effect for Easy Installation
- Designed for Clean-In-Place (CIP) and Sterilize-In-Place (SIP) Installations.
- Meets 3A Sanitary Standards
- 0.20% Full Scale Accuracy Improves System Performance
- Insensitive to Thermal Shock
- Industrial Design and 316 Stainless Steel Permits Use in Harsh Environments
- Higher Accuracy Option Available
- Meets CE Conformance Standards

NEW!
Option



Model 299 Dri-Sense Termination Enclosure

*When it comes to a product to rely on - choose the Model C290.
When it comes to a company to trust - choose Setra - an ESOP (Employee Owned) Company.*



Visit Setra Online:
<http://www.setra.com>

setra

Model C-290 Specifications

2" Tri-Clover Sanitary Fitting

Performance

Accuracy RSS* (At constant temperature)	±0.20% FS
Non-Linearity, (BFSL)	±0.17% FS
Hysteresis	0.10% FS
Non-Repeatability	0.025% FS

Thermal Effect**

Compensated Range °F (°C)	+ 20 to + 180 (-7 to +82)
Zero Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz

Clamping Effect

Zero Shift	±0.15% FS
Span Shift	±0.15% FS
Maximum Vacuum	Half on ranges ≤15 PSI (without affecting specifications)

*RSS of Non-Linearity, Non-Repeatability and Hysteresis.

**Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum.

1.5" Tri-Clover Sanitary Fitting

Performance

Accuracy RSS* (At constant temperature)	±0.20% FS
Non-Linearity, (BFSL)	±0.15% FS
Hysteresis	0.12% FS
Non-Repeatability	0.10% FS

Thermal Effect**

Compensated Range °F (°C)	+ 20 to + 180 (-7 to +82)
Zero Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)
Response Time	10 milliseconds
EMI/RFI Effect	< 1.0% output shift; 10V/M, 10-300 MHz

Clamping Effect

Zero Shift	±0.25% FS
Span Shift	±0.25% FS
Maximum Vacuum	Full on ranges ≥ 30 PSI (without affecting specifications)

*RSS of Non-Linearity, Non-Repeatability and Hysteresis.

**Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum.

2" and 1.5" Tri-Clover Fittings

Electrical Data

Circuit	2-Wire
Output*	4 to 20 mA**
Adjustment capabilities	
Zero	± 0.5 mA
Span	± 0.5 mA
External Load	0 to 800 ohms
Minimum supply voltage (VDC) = 12 + 0.02 x (Resistance of receiver plus line).	
Maximum supply voltage (VDC) = 30 + .004 x (Resistance of receiver plus line).	

Variations in the power supply voltage cause less than 0.005 mA change in the transmitter's current output, per volt change in the power supply. Reverse excitation will not damage circuit.

*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.

**Zero output factory set to within ±0.08mA.

**Span (Full Scale) output factory set to within ±0.16mA.

Environmental Data

Temperature

Operating* °F (°C)	-40 to +260 (-40 to +125)
Storage °F (°C)	-65 to +260 (-55 to +125)
Vibration	10 g, 50-1000Hz
Acceleration**	10 g maximum
Shock	50 g operating
Thermal Shock °F (°C)	0 to +257 (0 to +125) negligible shift

*Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.

**Shift in output reading at < 0.05% FS/g; pressure port axis only.

Pressure Ranges 2" Tri-Clover

psig	Range		Proof psig	Burst psig
	mb	in. H ₂ O		
1	100	27.7	50	100
2	160	55.4	100	150
5	400	138.4	150	200
10	600	276.8	150	200
15	1000	415.2	150	200
30		830.4	150	300
60		1660.8	180	400
100		2768	200	400
150		4152	225	400
-14.7 to 15		-407 to 415	150	300

Pressure Ranges 1.5" Tri-Clover

Range psig	Proof psig	Burst psig
30	1000	1200
60	1000	1200
100	1000	1200
150	1000	1200
300	1000	1200
500	1000	1500
1000	1250	2400
-14.7 to 15	1000	1200
-14.7 to 45	1000	1200

NOTE: Setra quality standards are based on ANSI-Z540-1. The calibration of this product is NIST traceable.

U.S. Patent No. 3859575; 4054833

Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications (<±0.5% FS zero shift).

Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

The C-290 design meets 3-A sanitary design standards and is fully sealed to withstand external high pressure washdown and CIP/SIP cycles. As a totally self-contained electronic package, the C-290's capacitance sensing element, coupled with a signal conditioned IC-based circuit, assures excellent accuracy and long term stability.

The C-290 pressure transmitter is intended for low to high pressure measurements of gases or liquids in sanitary applications.

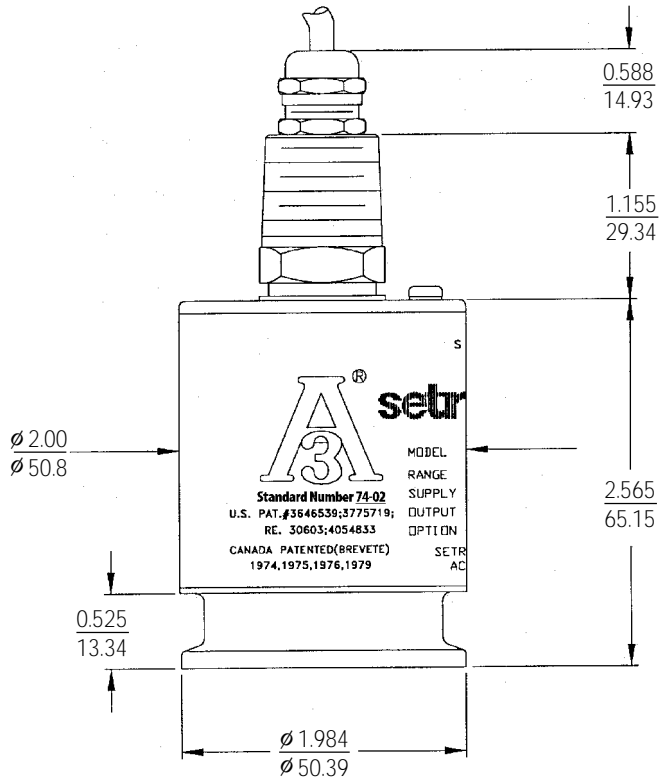
The C-290 pressure transmitter, packaged in a rugged welded stainless steel housing, is exceptionally insensitive to vibration, shock and environmental extremes. Its small size, light weight, and tri-clover sanitary pressure fitting allows direct mounting in most CIP and SIP installations.

A 1/2" NPT conduit fitting, shielded cable with vent tube, and sealed screws for access to zero and span adjustments, combine to make the C-290 completely watertight.

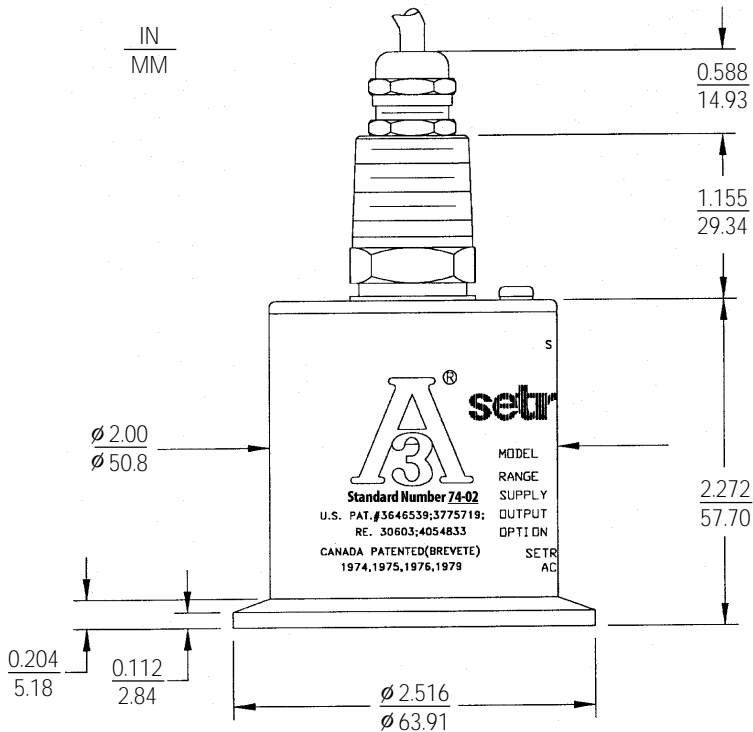
Setra's patented variable capacitance sensor approaches the ultimate in design simplicity. It features a stainless steel diaphragm and an insulated electrode, forming a variable capacitor. Inherent in this construction are low hysteresis, very stable operation and negligible clamping effect.

Increases in pressure cause a slight deflection of the diaphragm, which changes the capacitance. This change in capacitance is detected and converted to a highly accurate linear 4 to 20 mA signal by Setra's unique custom integrated circuit, which utilizes a patented charge-balance principle.

Dimensional Data



1 1/2" Tri-Clover Sanitary Fitting
Diaphragm Material: 316SS



2" Tri-Clover Sanitary Fitting
Diaphragm Material: 316LSS

Physical Description

Zero/Span Adjustments	Top Access Through Seal Screws
Case	Stainless Steel
Electrical Connection	1/2" NPT Conduit Fitting and Strain Relief with 15-Foot Shielded Cable.
Pressure Fitting	2" or 1-1/2" Tri-Clover Sanitary
Fitting	
Sanitary	Meets 3-A Sanitary Standard (74-02)
Vent	Through Cable
Weight (Approximate)	8 ounces

Options

Option 715	±0.1% FS (RSS) Accuracy
Option 816-825	Up to 25 feet of cable can be supplied on your order. Please specify cable length when ordering (eg., 820 for 20 ft. cable). Consult factory for cables longer than 25 ft.
Option 884	20 Ra Finish
Option 911	Etched Metal Stainless Steel Tag.

Accessory

Model 299 Dri-Sense Termination Enclosure

Designed to eliminate failure in the field caused by humidity seeping into the transducer through the cable, the Model 299 has a desiccating cover to adsorb moisture.

Features:

- Visible Desiccant Status Indicator...changes from blue (dry) to pink (saturated)
- Easily Replaceable Desiccating Cover
- Replaceable Terminal Interface Circuit Board
- Surge Suppression to 2000 Volts
- NEMA 4x (IP65) Industrial Housing



Ordering Information

Order as a C290 sanitary pressure transmitter. Specify pressure range, fittings and any options.

Specifications subject to change without notice.