

Model 280E/C280E

Pressure Transducer

For Corrosive Liquids or Gases
Gauge, Compound and Absolute Pressures

Applications

- High Pressure
- General Purpose
- Process Control
- P/I Process Signals
- Hydraulics and Pneumatics

Features

- Low Cost/High Performance
- 0.11% Full Scale Accuracy
- High Level Output: 0-5 VDC or 4-20 mA
- One-Piece Stainless Steel Sensor
- Small Size and Light Weight
- Temperature Compensated for Low Thermal Error



Setra Systems Model 280E/C280E pressure transducers are intended for low to high pressure measurements of gases or liquids in applications requiring rugged packaging, high performance and affordability. The 17-4 PH stainless steel capacitance sensing element, coupled with an IC-based circuit, assures excellent accuracy and long term stability.

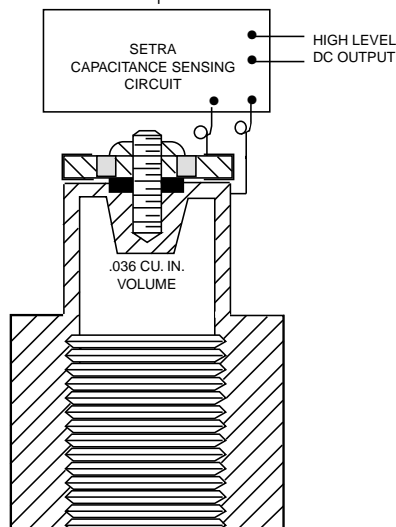
The stable electronic circuit, combined with Setra's patented variable capacitance sensor, results in the ultimate in design simplicity. The sensor features a one-piece 17-4 PH stainless

steel pressure sensor and an insulated electrode, which forms a variable capacitor. As the pressure increases, the capacitance decreases. This change in capacitance is detected and converted to a linear DC output signal.

The high level 0-5 VDC or 4-20 mA output signal requires no additional signal conditioning and results in excellent stability, accuracy, and fast dynamic response, making the 280E Series ideal for high performance applications.

Pressure Ranges

Gauge Pressure psig	Absolute Pressure psia	Proof Pressure psi	Burst Pressure psi
0-15		25	75
0-25	0-25	50	150
0-50	0-50	75	200
0-100	0-100	150	500
0-250	0-250	375	1000
0-500	0-500	750	1500
0-1000	0-1000	1250	3000
0-3000	0-3000	3750	4500
0-5000	0-5000	6000	7500
0-10,000		11,000	12,500
-14.7 to 35		75	200
-14.7 to 50		150	500
-14.7 to 100		150	500
3-15 (P/I-C280E only)		25	75



Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this sensor design.

U.S. Patent nos. 3859575; 4093915



Model 280E/C280E Specifications

Performance Data

Accuracy RSS* (at constant temp)	±0.11% FS
Non-Linearity, BFSL	±0.1% FS
Hysteresis**	0.05% FS
Non-Repeatability	0.02% FS
Thermal Effects***	
Compensated Range °F(°C)	+32 to +150 (0 to +65)
Zero Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Span Shift %FS/100°F(%FS/50°C)	2.0 (1.8)
Warm-up Shift	0.5% FS (0.1% FS residual shift after 5 minutes)

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

**0.1% FS for 10,000 psi range only.

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

Environmental Data

Temperature	
Operating* °F (°C)	0 to +175 (-18 to +80)
Storage °F (°C)	-65 to +200 (-54 to +93)
Vibration	2g from 5 Hz to 500 Hz
Acceleration	10g**
Shock	50g

*Operating temperature limits of the electronics only.

Pressure media temperatures may be considerably higher or lower.

**Shift in output reading of 0.05% FS/G typical, pressure port axis only.

Physical Description

Case	Stainless Steel with O-Ring
Electrical Connection	1" Edge Card with Space Lugs and Dust Boot
Pressure Fitting	1/4" - 18 NPT Internal
Pressure Cavity Volume	0.04 in. ³
Volume Increase	5 x 10 ⁻⁵ in. ³ (at FS pressure)
Weight	5 ounces

Pressure Media

Gases or liquids compatible with 17-4 PH Stainless Steel.*

*Hydrogen not recommended for use with 17-4 PH Stainless Steel.

Electrical Data 280E (Voltage)

Circuit	3-Wire (+In, +Out, Com)
Excitation	15 to 32 VDC
Output*	0 to 5 VDC**
Power Consumption	0.25 watts (approx. 10mA @ 24 VDC)
Output Impedance	100 ohms
Output Noise	100 microvolts RMS (0 Hz to 10 KHz)

*Calibrated into a 50K ohm load.

**Zero output factory set to 30mV nominal.

**Span (Full Scale) output factory set to within ±50mV.

Electrical Data C280E (Current)

Circuit	2-Wire
Output*	4 to 20 mA**
External Load	0 to 800 ohms
Minimum supply voltage (VDC) = 18 + 0.02x (Resistance of receiver plus line).	
Maximum supply voltage (VDC) = 32 + 0.004 x (Resistance of receiver plus line).	
Reverse Excitation Protected.	
*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.	
**Zero output factory set to within ±0.16mA.	
**Span (Full Scale) output factory set to within ±0.16mA.	

Available Options

Electrical Options

Option # 627 12 VDC Excitation (10-17 VDC, Available on voltage unit 280E only).

Performance Options

Option #710 0.073% FS (RSS) Accuracy (Not available on 10,000 PSIG range).

Mechanical Options

Option #865 NEMA 4 Weatherproof Enclosure

Option #866 Explosion Proof PT Housing, FM Approved for: CL. I, Div. 1&2, G.P.A, B, C, D; CL. II, Div. 1&2, G.P.E, F, G; CL. III, Div. 1&2 and NEMA 4 Weatherproof when factory installed in this enclosure.

Feature Options

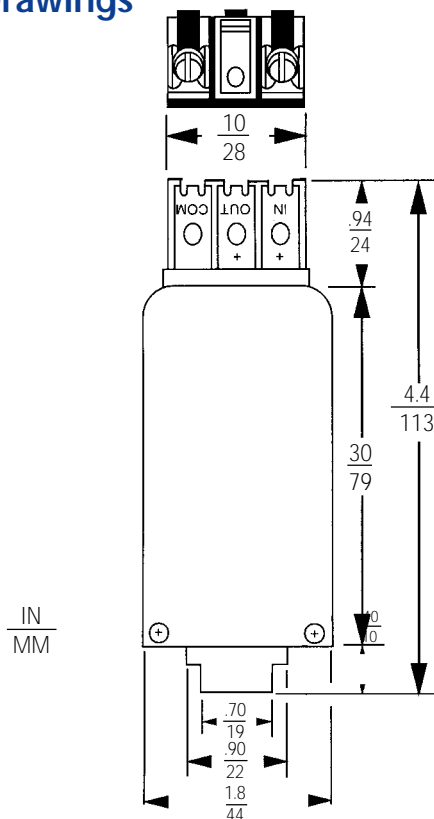
Option #901 11-Point Calibration Certificate

Option #904 Cleaning for Oxygen Service

SR Special Ranges

Specifications subject to change without notice.

Outline Drawings



Supplied with 3 clips (P/N 280630). 3 screws 6-32 x 1/4" pan head (P/N 234904) and 3 spade lugs (P/N 280200) 2 supplied on C280E 6 pin edge connector (P/N 280202) also available.

CAUTION: Center clip must be mounted on opposite side of outside clips to avoid shorting. (280E only)

ORDERING INFORMATION

Specify: 280E for Voltage Output
C280E for Current
Pressure Range and Type
Options



While we provide application assistance on all Setra products, both personally and through our literature, it is up to the customer to determine the suitability of the product in the application.