

## 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.

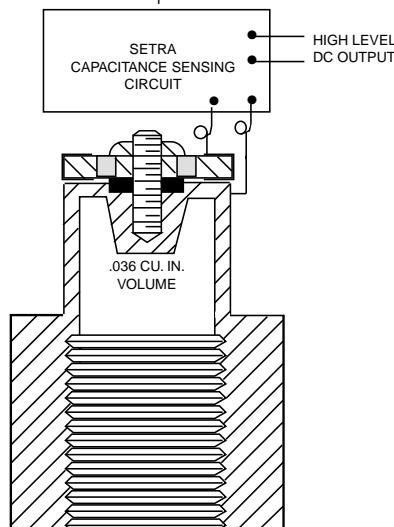
The stable electronic circuit, combined with Setra's patented variable capacitance sensor, results in the ultimate in design simplicity. The sensor features a one-piece 17-4 PH stainless

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.*

159 Swanson Rd., Boxborough, MA 01719/Telephone: 978-263-1400/Fax: 978-264-0292

U.S. Patent nos. 3859575; 4093915

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



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

**setra**

**800-257-3872**

# 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
<u>Thermal Effects***</u>	
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. <sup>3</sup>
Volume Increase	5 x 10 <sup>-5</sup> in. <sup>3</sup> (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

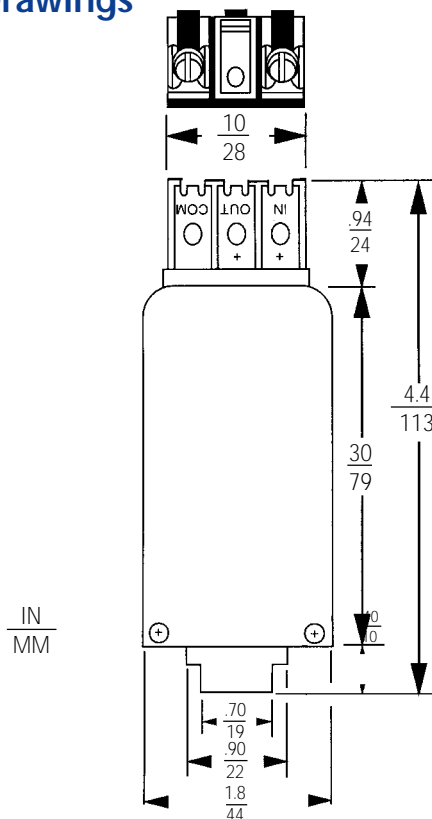
Option #901 11-Point Calibration Certificate

Option #904 Cleaning for Oxygen Service

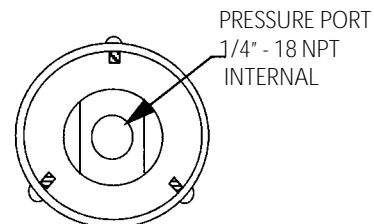
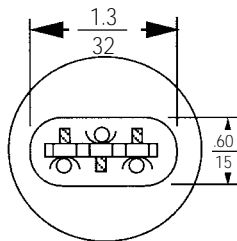
SR Special Ranges

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