

# Model 280E/C280E

## Gauge, Compound and Absolute Pressure Transducer



### DESCRIPTION

Setra Systems Model 280E/C280E pressure transducer 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 or 15-5 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 variable capacitance sensor, results in the ultimate in design simplicity. The sensor features a 17-4 PH or 15-5 PH stainless steel pressure sensor and an insulated electrode, which forms a variable capacitor. As the pressure increases, the capacitance decreases. The 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.

### BENEFITS

- Low Cost/High Performance
- 0.11% Full Scale Accuracy
- High Level Output: Voltage & Current
- One Piece Stainless Steel Sensor
- Small Size and Light Weight
- Temperature Compensated for Low Thermal Error

### APPLICATIONS

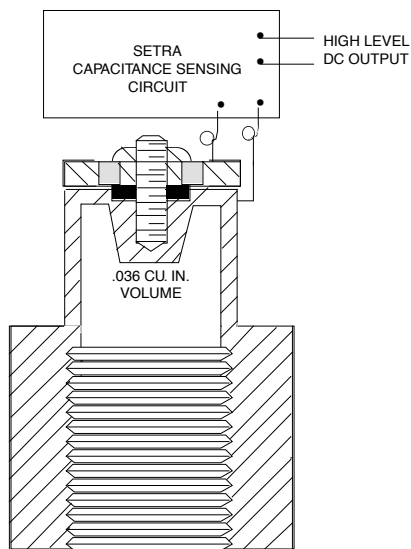
- High Pressure
- General Purpose
- P/I Process Signals
- Hydraulics and Pneumatics

### SPECIFICATIONS

Performance Data		Physical Description		Electrical Data (Voltage)	
Accuracy RSS <sup>1</sup> (at constant temperature)	±0.11% FS	Case	Stainless Steel with O-Ring	Circuit	3-Wire (+In, +out, Com)
Non-Linearity, (BFSL)	±0.1% FS	Electrical Connection	1" Edge Card with Space Lugs and Dust Boot	Excitation	15 to 32 VDC
Hysteresis <sup>2</sup>	0.05% FS	Pressure Fitting	1/4" - 18 NPT Internal	Output <sup>7</sup>	0 to 5 VDC <sup>8</sup>
Non-Repeatability	0.02% FS	Pressure Cavity Volume	0.04 in. <sup>3</sup>	Power Consumption	0.25 watts (approx. 10mA @ 24 VDC)
<b>Thermal Effects<sup>3</sup></b>		Volume Increase	5 x 10 <sup>-3</sup> in. <sup>3</sup>	Output Impedance	100 ohms
Compensated Range	+32 to +150°F (0 to +65°C)	Weight	5 oz	Output Noise	100 microvolts RMS (0 Hz to 10 KHz)
Zero/Span Shift %FS/100°F (%FS/50°C)	2.0 (1.8)	<b>Environmental Data</b>		<b>Electrical Data (Current)</b>	
Warm-Up Shift	0.5% FS (0.1% FS residual shift after 5 minutes)	Temperature		Circuit	2-Wire
<b>Pressure Media</b>		Operating <sup>5</sup>	0 to +175°F (-18 to +80°C)	Output <sup>9</sup>	4 to 20 mA <sup>10</sup>
Gases or liquids compatible with 17-4 PH or 15-5 PH Stainless Steel. <sup>4</sup>		Storage	-65 to +200°F (-54 to +93°C)	External Load	0 to 800 ohms
<b>Available Options</b>		Vibration	2g from 5 Hz to 500 Hz	Min. Supply Voltage (VDC) = 18 + 0.02 x (Resistance of receiver plus line)	
Electrical Options		Acceleration	10g <sup>6</sup>	Max. Supply Voltage (VDC) = 32 + 0.004 x (Resistance of receiver plus line)	
Option #627	12 VDC Excitation (10-17 VDC, Available on voltage unit 280E).	Shock	50g	Reverse Excitation Protected.	
Performance Options		<sup>1</sup> RSS of Non-Linearity, Hysteresis and Non-Repeatability. <sup>2</sup> 0.1% FS for 10,000 psi range only. <sup>3</sup> Units calibrated at nominal 70°F. Maximum thermal error is computed from this datum. <sup>4</sup> Hydrogen not recommended for use with 17-4 PH or 15-5 PH Stainless Steel. <sup>5</sup> Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower. <sup>6</sup> Shift in output reading of 0.05% FS/G typical, pressure port axis only. <sup>7</sup> Calibrated into a 50K ohm load. <sup>8</sup> Zero output factory set to 30mV nominal. <sup>9</sup> Calibrated at factory with 24 VDC loop supply voltage and a 250 ohm load. <sup>10</sup> Zero output and Span FS factory set to within ±0.16mA. Span (Full Scale) output factory set to within ±0.16mA.			
Option #710	0.073% FS (RSS) Accuracy (Not available on 10,000 PSIG range).				
Mechanical Options					
Option #865	NEMA 4 Weatherproof Enclosure				
Feature Options					
Option #901	11-Point Calibration Certificate				
Option #904	Cleaning for Oxygen Service				
SR	Special Ranges				

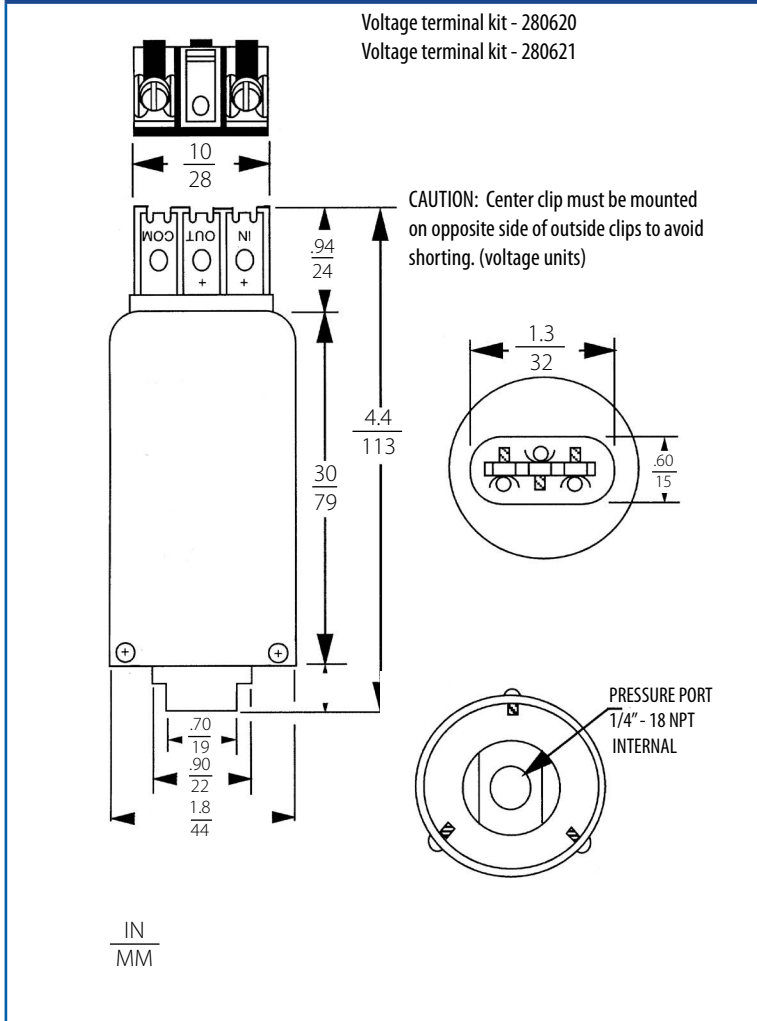
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Extremely low hysteresis and very stable operation under extreme temperature conditions are inherent in this sensor design.

### DRAWINGS & DIMENSIONS



### PRESSURE RATING (PSI)

Sensor Range	Proof Pressure	Burst Pressure
0-15	25	75
0-25	50	150
0-50	75	200
0-100	150	500
0-250	375	1000
0-500	750	1500
0-1000	1250	3000
0-3000	3750	4500
0-5000	6000	7500
0-10000	11000	12500
-14.7 to 35	75	200
-14.7 to 50	150	500
3-15	25	75

All other compound ranges have same rating as gauge ranges.

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