

Model 540 High Temperature Pressure Transducers

Sealed Gauge and Absolute Pressure



Setra System's Model 540 pressure transducer is packaged to survive high temperature extremes in rugged industrial and process applications

Utilizing thin film technology, the Model 540 offers a wide compensated temperature range from -65°F up to +250°F with operating temperatures as low as -65°F up to 275°F, and pressure measurement from -14.5 psi up to 6,000 psi.

The Model 540 is available in 0.1% FS or 0.08% accuracy, with a 30 mV \pm 1% (span) output, choice of gauge, sealed gauge, absolute or unidirectional pressure ranges, a wide variety of pressure connectors, and choice of 6-Pin Bayonet, IP 68 rated cable, or weatherproof cable for electrical termination.

Requiring virtually no maintenance, the Model 540 is rated for twenty-five years MTBF. The stability of this unit assures the user of high reliability, with less than 0.06% drift per year.

All wetted parts are constructed of 17-4 PH SS or corrosion resistant Inconel® for differential units \leq 1.6 Bar [30 PSI], 17-4 PH and 15-7 Mo) making the Model 540 ideal for use with corrosive media.

The Model 540 case is 321SS, and is rated for NEMA 4/IP40, IP65, IP66, and NEMA 6/IP68 operation. This unit is protected against contact by small tools and wires, and is suitable for continuous submersion in water, water projected by a nozzle or jets.

Principle of Operation

Thin Film Strain Gauge Pressure Sensors

Using the well proven Wheatstone Bridge principle, molecular layers are sputtered onto a 17-4 PH stainless steel sensing element, providing excellent resistor definition and uniformity. Sputtered thin film technology allows the design of simple, highly accurate and compact strain gauges. This method virtually eliminates drift, while offering enhanced sensitivity.

Applications

- Off-Highway
- Natural Gas Equipment
- Test & Measurement
- Aerospace
- Power Plants
- Heating, Ventilating & Air-Conditioning
- Refrigeration
- Robotics

Benefits

- Superior Stability
Avoids Down Time
- \pm 0.1% FS High Accuracy
- NEMA 4/IP40, IP65, IP66, and NEMA 6/IP68 Rated
- 25 year MBTF Rating
- Wide Operating Temperature Range:
-65°F up to +275 °F
- Meets \llcorner Conformance Standards

*When it comes to a product to rely on - choose the Model 540.
When it comes to a company to trust - choose Setra.*



Visit Setra On-line:
<http://www.setra.com>

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800-257-3872

Model 540 Specifications

Performance Data

Accuracy RSS* (at constant temp)	±0.1% FS ±0.08% FS
Thermal Effects**	
Compensated Range °F (°C)	-65 to +250 (-54 to +120)
Accuracy ±0.1% FS	
Zero Shift %FS/100°F (100°C)	0.6 (1.2)
Span Shift %FS/100°F (100°C)	0.6 (1.2)
Accuracy ±0.08%	
Zero Shift %FS/100°F (100°C)	0.3 (0.6)
Span Shift %FS/100°F (100°C)	0.3 (0.6)
Long-Term Stability	0.06% FS/1 year
Common Line Pressure	Max. 60 Bar Absolute (850 psia) Differential Units Only
Proof Pressure	2 x FS (1.5 x FS for Inconel Parts)
Burst Pressure	>35 x FS <= 150 Psi (10 Bar) >15 X FS <= 1500 Psi (100 Bar) >8 X FS <= 10,000 Psi (690 Bar)

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

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

Pressure Media

Liquids or gases compatible with 17-4 PH Stainless Steel or Inconel®. Differential Units: Dry non-corrosive gas on reference port

Environmental Data

Temperature	
Operating* °F (°C)	
for Twist Lock Conn	-65 to +135 (-54 to +135)
for Cable Unit	-65 to +250 (-54 to +120)
for Submersible Unit	-4 to +122 (-20 to 50)
Storage °F (°C)	
for Twist Lock Conn	-65 to +135 (-54 to +135)
for Cable Unit	-65 to +250 (-54 to +120)
for Submersible Unit	-4 to +122 (-20 to 50)
Vibration	
	35g Peak Sinusoidal, 5 to 2000 Hz
Shock	
	Withstands Free Fall to IEC 68-2-32 Proc 1

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

Physical Description

Case	321 Stainless Steel
Ratings	IP40 (NEMA 4) w/Bayonet, Gauge Unit IP65 (NEMA 4) w/Bayonet, Absolute Unit IP66 (NEMA 4) w/Weatherproof Cable IP68 (NEMA 6) w/ Submersible Cable

Physical Description (Cont'd)

Wetted Parts	17-4 PH (Inconel, Optional) (17-4 PH and 15-7 Mo SS for <= 1.6 Bar [30 Psi] Range.)
Electrical Connection	10-6 Bayonet, Weatherproof Cable, IP68 Cable
Pressure Fitting	See Ordering Information Below
Weight	5.3oz (150g)

Electrical Data (Millivolts)

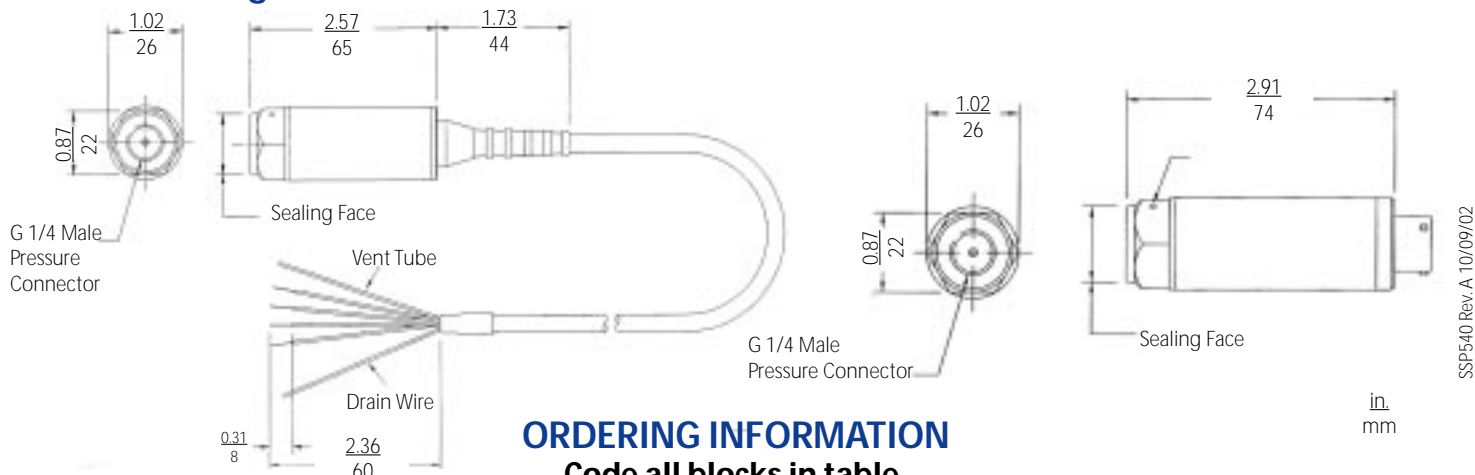
Circuit	4-Wire (+Exc, -Out, +Out, -Exc)
Excitation	10VDC Regulated (15VDC Max.)
Output*	
Bar Ranges	30 mV ± 1% Span (Certificate Supplied)
2.5 Bar (30 PSI) w/Inconel	25 mV ± 1% Span
PSI Ranges	25 to 33 mV Span

Bridge Resistance 2200 to 5250 Ohms

*Zero output is factory set to 0 mV ± 1 mV for 0.1% Accuracy

*Zero output is factory set to 0 mV ± 0.6 mV for 0.08% Accuracy

Outline Drawings



SSP540 Rev. A 10/09/02

ORDERING INFORMATION

Code all blocks in table.

Example: Part No 5401015PGG2ZZY1M- For a Model 540 Pressure Transducer, 15 PSI Gauge Pressure, G 1/4" Male Pressure Fitting, 10-6 Bayonet, 0.1% Accuracy

Model	Range	Pressure	Pressure Fitting	Output	Elec. Termination	Accuracy	Options
5401 = 540 w/SS Sensor	015P = 15 PSI	001B = 1 BAR	G2 = G 1/4 Male	BN = 30mV ± 1% w/Certificate*	B3 = 10-6 Bayonet	T = 0.1% FS	S = Seawater Version
5402 = 542 w/Inconel Fittings	030P = 30 PSI	0R6B = 1.6 BAR	J7 = 7/16-20 UNF	BS = 25 to 33 mV for PSI Ranges* *25 mV ± 1% (for 2.5 Bar (30 PSI) for Unit w/Inconel Fitting)	N4 = Weatherproof Cable	U = 0.08% FS	E = Extra Lightning Protection
	060P = 60 PSI	2R5B = 2.5 BAR	G4 = G1/2 AT Male		U1 = IP 68 Cable, Immersible (1 Meter Length)		
	100P = 100 PSI	004B = 4 BAR	2M = 1/4-18 NPT Male				
	150P = 150 PSI	006B = 6 BAR	2F = 1/4-18 NPT Female				
	300P = 300 PSI	010B = 10 BAR	4M = 1/2-14 NPT Male				
	500P = 500 PSI	016B = 16 BAR	W1 = Plastic Nose Cone				
	10CP = 1000 PSI	025B = 25 BAR	W2 = Sink Weight Nose Cone				
	15CP = 1500 PSI	040B = 40 BAR	W3 = Plastic Nose Cone w/ Restrictor				
	30CP = 3000 PSI	060B = 60 BAR					
	60CP = 6000 PSI	100B = 100 BAR					
	10KP = 10,000 PSI	160B = 160 BAR					
		400B = 400 BAR					
		600B = 600 BAR					

Please contact factory for configurations not shown.

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

159 Swanson Road, Boxborough, MA 01719/Tel: 978-263-1400;
Toll Free: 800-257-3872; Fax: 978-264-0292; email: sales@setra.com

