

## Model 541

### Extreme High Temperature Pressure Transducers

Sealed Gauge and Absolute Pressure



**S**etra System's Model 541 pressure transducer is packaged to survive the extreme high temperatures found in harsh industrial and process applications.

Utilizing thin film technology, the Model 541 offers a wide compensated temperature range from -65°F up to +390°F, and pressure ranges from 15 psi up to 10,000 psi.

The Model 541 is available in 0.1% FS accuracy, 25 to 38 mV output, choice of sealed gauge or absolute pressure ranges, a wide variety of pressure fittings, and choice of 5-Pin or 6-Pin Bayonet connector for electrical termination.

All wetted parts are constructed of 17-4 PH stainless steel (17-4 PH and 15-7 Mo for ranges  $\leq 1.6$  Bar; Inconel® for 9000 psi or 10,000 psi range ), making this unit ideal for use with corrosive media.

Requiring virtually no maintenance, the stability of this unit assures the user of high reliability with less than 0.06% drift per year.

The Model 541 case is 321 SS, and is rated for IP65 operation, which protects the unit against the ingress of dust, or water projected under pressure.

#### 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
- Semiconductor Processing
- Power Plants
- Heating, Ventilating & Air-Conditioning
- Refrigeration
- Robotics

## Benefits

- Superior Stability  
Avoids Down Time
- $\pm 0.1\%$  FS Accuracy
- IP65 Rated Enclosure
- Wide Compensated  
Temperature Range:  
-65°F up to +390°F
- High Shock Resistance
- Operating Temperature  
Range up to 450°F
- Meets CE Conformance  
Standards

*When it comes to a product to rely on - choose the Model 541 .  
When it comes to a company to trust - choose Setra.*



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

# setra

**800-257-3872**

# Model 541 Specifications

## Performance Data

|                                  |  |
|----------------------------------|--|
| Accuracy RSS* (at constant temp) | ±0.1% FS   |
| <b>Thermal Effects**</b>         |  |
| Compensated Range °F (°C)        | -65 to +390 (-54 to +200)  |
| Zero Shift %FS/°F (°C)           | 0.005 (0.01)   |
| Span Shift %FS/°F (°C)           | 0.005 (0.01)   |
| Long-Term Stability              | 0.06% FS/year  |
| Vibration                        | 35g Peak Sinusoidal,<br>5 to 2000 Hz   |
| Shock                            | Withstands Fall to<br>IEC 68-2-32Proc. 1   |
| Proof Pressure                   | 2 x FS   |
| Burst Pressure                   | >35 x FS ≤ 150 Psi (10 Bar)<br>>15 X FS ≤ 1500 Psi (100 Bar)<br>>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.

## Environmental Data

|                    |   |
|--------------------|---|
| Temperature        |   |
| Operating* °F (°C) | for/10-5 Screw Lock (5-Pin) -65 to +450 (-54 to +230)<br>for/10-6 Bayonet Conn. (6-Pin) -65 to +385 (-54 to +195) |
| Storage* °F (°C)   | for/10-5 Screw Lock (5-Pin) -65 to +450 (-54 to +230)<br>for/10-6 Bayonet Conn. (6-Pin) -65 to +385 (-54 to +195) |

\*Operating/Storage temperature limits of the connector only.

## Physical Description

|                       |   |
|-----------------------|---|
| Case                  | 321 Stainless Steel and IP65 Rated  |
| Wetted Parts          | 17-4 PH Stainless Steel<br>(17-4 PH Stainless Steel and<br>15-7 Mo SS Ranges ≤ 1.6 Bar)<br>Inconel® for 9000 PSI and 10,000 PSI |
| Ranges                |   |
| Electrical Connection | 10-5 Screw Lock (5 Pin Size 10),<br>MIL C-83723<br>10-6 Bayonet (6 Pin Size 10), MIL C-26482                                    |
| Pressure Fitting      | See Ordering Information Below  |
| Weight                | 4.6oz (130g)  |

## Electrical Data (Voltage)

|                   |                                |
|-------------------|--------------------------------|
| Circuit           | 4-Wire (±Exc, ±Out.)           |
| Output*           | 25 to 38 mV Span               |
| Excitation        | 10 VDC Regulated (15 VDC Max.) |
| Bridge Resistance | 590 to 1510 Ohms               |

\*Zero output is factory set to 0 mV ± 10% FS.

## Pressure Media

Liquids or gases compatible with 17-4 PH SS\* (17-4 PH Stainless Steel and 15-7 Mo SS ≤ 1.6).

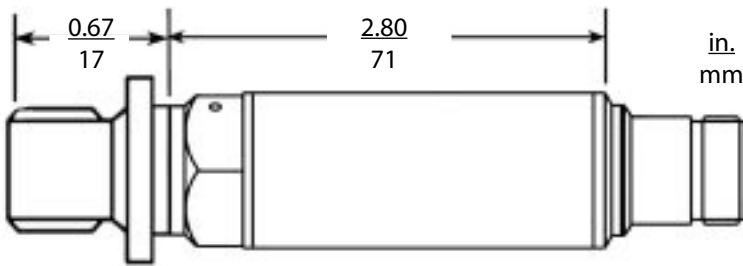
\*Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel

## Accessories

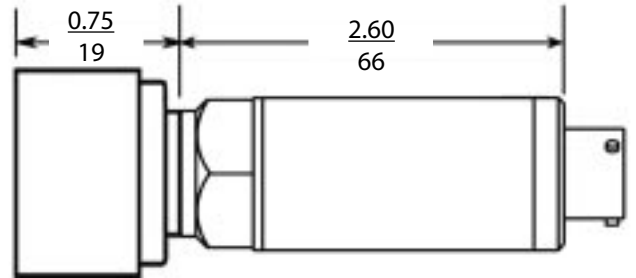
| Part No. | Description   |
|----------|---|
| GA11     | 6 Pin Bendix to 257°F (125°C)                                   |
| GA12     | Mating Connector  |
| GA13     | Clamp   |
| GA17     | Mounting Clamp (Polypropylene) 86°F to 194°F (-30°C to 90°C)    |
| GA20     | Mounting clamp (Polyimide, 25 mm) 86°F to 194°F (-30°C to 90°C) |
| GA30     | G 1/4 Bonded Seal Washer to 392°F (200°C)                       |

Specifications subject to change without notice.

## Outline Drawings



Shown w/10-5 Screw Lock  
Electrical Connector and  
G 1/4 Male Fitting



Shown w/10-6 Bayonet Connector  
and G 1/4 Female Pressure Fitting

## ORDERING INFORMATION

Code all blocks in table.

Example: Part No 5411001BAG2BT4T - for a Model 541 Pressure Transducer, 1 BAR, Absolute Pressure, G 1/4" Male Pressure Fitting, 25 to 38 mV Output, 10-5 Bayonet Connector, 0.1% Accuracy

| Model      | Range  | Pressure  | Pressure Fitting   | Output           | Elec. Termination  | Accuracy            |
|------------|--|---|--|------------------|--|---------------------|
| 5411 = 541 | 015P = 15 PSI<br>030P = 30 PSI<br>060P = 60 PSI<br>100P = 100 PSI<br>150P = 150 PSI<br>200P = 200 PSI<br>300P = 300 PSI<br>500P = 500 PSI<br>600P = 600 PSI<br>10CP = 1000 PSI<br>15CP = 1500 PSI<br>20CP = 2000 PSI<br>30CP = 3000 PSI<br>40CP = 4000 PSI<br>60CP = 6000 PSI<br>90CP = 9000 PSI*<br>10KP = 10000 PSI* | 001B = 1 BAR<br>0R6B = 1.6 BAR<br>2R5B = 2.5 BAR<br>004B = 4 BAR<br>006B = 6 BAR<br>010B = 10 BAR<br>016B = 16 BAR<br>025B = 25 BAR<br>040B = 40 BAR<br>060B = 60 BAR<br>100B = 100 BAR<br>160B = 160 BAR<br>250B = 250 BAR<br>400B = 400 BAR<br>600B = 600 BAR*<br>690B = 690 BAR* | A = Absolute<br>S = Sealed Gauge<br>G4 = G1/2 Male<br>G2 = G 1/4 Male<br>G3 = G 1/4 Female<br>J7 = 7/16 -20 UNF Male<br>SAE #4 (J1926-2)<br>2M = 1/4-18 NPT Male<br>4M = 1/2-14 NPT Male | BT = 25 to 38 mV | B4 = 10-5 Screw Lock<br>Connector, MIL C-83723<br>(Mating Connector<br>Part #GA12)<br>B3 = 10-6 Bayonet Connector,<br>MIL C-26482<br>(Mating connector<br>Part #166267-0006) | T = 0.1% Full Scale |

\*Note: Range only available on transducer w/Inconel® wetted parts.

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; **setra**  
Toll Free: 800-257-3872; Fax: 978-264-0292; email: sales@setra.com

SSP541 Rev.B 09/3C