

Model 516

Industrial OEM Pressure Transducers

Gauge and Compound Pressure



Setra System's Model 516 OEM pressure transducer is designed for demanding industrial applications that are subjected to pressure spikes, shock, and vibration caused by the harsh physical and environmental conditions of industrial applications.

The Model 516's CVD strain gauge design is resistant to aging and virtually insensitive to thermal transients and pressure cycling. The stability of this technology assures the user of high reliability with less than 0.2% drift per year.

This unit's exceptional proof pressure is 4 x full scale with less than a 1.0% zero shift.

All wetted parts are constructed of corrosion-resistant 17-4 PH stainless steel, which makes this unit ideal for use with corrosive media.

The Model 516 offers 0.5% FS accuracy, compensated temperature range of -5°F to +180°F (-20°C to 80°C), and gauge or compound pressure ranges from -14.7 psi up to 6000 psi.

The Model 516's modular design is offered in a wide choice of voltage or current outputs over almost any pressure range, and a variety of pressure and electrical connections, enabling this unit to be custom configured for your OEM application.

The 516 enclosure is fabricated in 316SS and 17-4 PH SS, and rated for IP65 operation when mated with the 8-4 or 10-6 Bayonet connector, or large DIN 43650 connector, and IP30 when mated with the 1/2" Conduit Connector w/ flying leads.

Principle of Operation

Using the well proven Wheatstone Bridge principle, a chemical vapor is deposited in thin layers of silicon and silicon dioxide onto a stainless steel sensor to form a very sensitive and accurate polysilicon strain gauge. The elements of the strain gauge are fused together at the atomic level, assuring the strength and integrity of the bond, which exceeds the adhesives used in common bonded strain gauge pressure sensors. A custom designed ASIC performs signal amplification and temperature calibration. This technology offers the user the option of configurable output and pressure ranges, sets the zero and span tolerance, and ensures interchangeability from unit to unit.

Applications

- General Purpose
- Off-Highway Vehicles
- Industrial OEM Equipment
- Hydraulic Systems
- Pumps and Compressors
- Industrial Engines
- Process Systems

Benefits

- Superior Stability Avoids Down Time
- Insensitive to Pressure Spikes
- 0.5 ms Response Time
- ±0.5% FS Accuracy
- Intrinsic Safe Option
- High Shock Resistance
- Meets CE Conformance Standards

*When it comes to a product to rely on - choose the Model 516.
When it comes to a company to trust - choose Setra.*



setra

Model 516 Specifications

Performance Data

| | |
|----------------------------------|---|
| Accuracy RSS* (at constant temp) | ±0.5% Full Scale |
| Thermal Effects** | |
| Compensated Range °F (°C) | -5 to +180 (-20 to +80) |
| Zero Shift %FS/100°F (100°C) | 1.0 (2.0) |
| Span Shift %FS/100°F (100°C) | 1.0 (2.0) |
| Response Time | 0.5 ms |
| Long-Term Stability | 0.2% FS/year |
| Proof Pressure | 4 x FS (< 1% Zero Shift) |
| Burst Pressure | >35 x FS <= 60 Psi (4 Bar) >20 X FS <=600 Psi (40 Bar) >5 X FS <= 6000 Psi (400Bar) |

*RSS of Non-Linearity, Non-Repeatability and Hysteresis.
 **Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

Physical Description

| | |
|--------------|--|
| Case | 316 Stainless Steel, 17-4 Stainless Steel |
| Ratings | IP65 for Elec Codes B1, B3, E2 IP30 for Elec. Code A2 w/ Flying Leads |
| Wetted Parts | 17-4 PH Stainless Steel |

Physical Description (Cont'd)

| | |
|-----------------------|--|
| Electrical Connection | 8-4 or 10-6 Bayonet Connector Large DIN 43650 Plug w/Mating Plug 1/2" NPT Conduit with Leads |
| Pressure Fitting | See Ordering Information Below |
| Weight | 3.5oz (100g) |

Environmental Data

| | |
|--------------------|---|
| Temperature | |
| Operating* °F (°C) | for/Elec Codes B1, B2 -40 to +260 (-40 to +125) for/Elec. Codes E2, A2 -5 to +180 (-20 to +80) |
| Storage °F (°C) | for/Elec Codes B1, B2 -40 to +260 (-40 to +125) for/Elec. Codes E2, A2 -5 to +180 (-20 to +80) |
| Vibration | 70g Peak to Peak Sinusoidal, 5 to 5000 Hz (Random Vibration: 20 to 200 Hz~ 20g Peak per MIL STD-810E Method 514.4) |
| Shock | 20g, 11ms, per MIL-STD-810E Method 516.4 Procedure 1 |

*Operating/Storage temperature limits of the connector only.
 Specifications subject to change without notice.

Electrical Data (Voltage)

| | |
|------------|--|
| Circuit | 3-Wire (Exc, Out, Com) |
| Excitation | 1.5 VDC Above Span to 35 VDC @ 6mA** |
| Output* | 0 to 5VDC, 0 to 10VDC, 0.5 to 5.5VDC, 1 to 5VDC, 1 to 6VDC, 1 to 11VDC |

*Zero output is factory set to <1.0% of Full Scale.
 *Span output is factory set to <1.0% of Full Scale.
 **Temperatures >100°C/212°F supply is limited to 24VDC.

Electrical Data (Current)

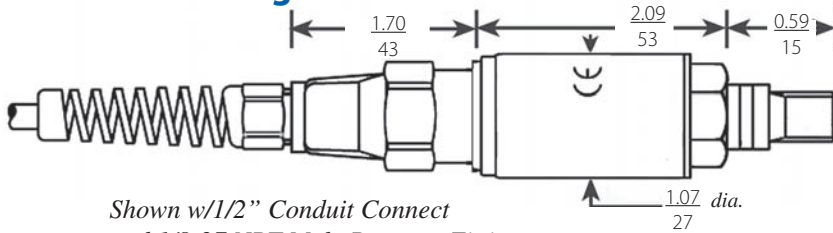
| | |
|-------------------------|----------------------|
| Circuit | 2-Wire |
| Output* | 4 to 20 mA** |
| Loop Supply Voltage | 24 VDC, (7-35 VDC)** |
| Maximum Loop Resistance | (Vs-7) x 50 Ohms |

*Zero output factory set to within ±0.16 mA.
 *Span output factory set to within ±0.16 mA.
 **Temperatures >100°C/212°F supply is limited to 24VDC.

Pressure Media

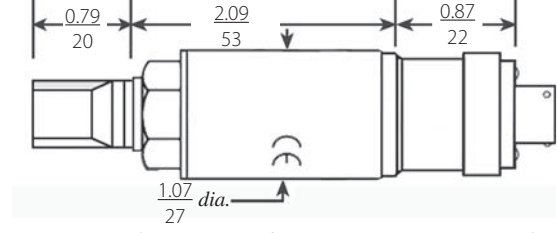
Liquids or gases compatible with 17-4 PH Stainless Steel.*
 *Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel.

Outline Drawings



Shown w/1/2" Conduit Connect and 1/8-27 NPT Male Pressure Fitting

in
mm



Shown w/10-6 Bayonet Connector and 1/4-18 NPT Pressure Fitting

ORDERING INFORMATION

Code all blocks in table.

.Example: Part No 5161030PG1M11B3H - For a Model 516 Pressure Transducer, 30 PSI, Gauge Pressure, 1/8-27 NPT Male Pressure Fitting, 4-20 mA, 10-6 Bayonet Connector, 0.5% Accuracy

| Model | Range | Pressure | Pressure Fitting | Output | Elec. Termination | Accuracy | Option |
|------------|--|---|--|---|---|-------------|---------------------|
| 5161 = 516 | 015P = 15 PSI 030P = 30 PSI 060P = 60 PSI 100P = 100 PSI 150P = 150 PSI 200P = 200 PSI 300P = 300 PSI 500P = 500 PSI 600P = 600 PSI 10CP = 1000 PSI 15CP = 1500 PSI 20CP = 2000 PSI 30CP = 3000 PSI 40CP = 4000 PSI 50CP = 5000 PSI 60CP = 6000 PSI 000P = -14.7 to 0 PSI 015P = -14.7 to 15 PSI 045P = -14.7 to 45 PSI 135P = -14.7 to 135 PSI 185P = -14.7 to 185 PSI 285P = -14.7 to 285 PSI | 001B = 1 BAR 0R6B = 1.6 BAR 2R5B = 2.5 BAR 004B = 4 BAR 006B = 6 BAR 010B = 10 BAR 016B = 16 BAR 025B = 25 BAR 040B = 40 BAR 060B = 60 BAR 100B = 100 BAR 160B = 160 BAR 250B = 250 BAR 400B = 400 BAR | G = Gauge C = Compound 1M = 1/8-27 NPT Male 2M = 1/4-18 NPT Male SM = 1/4-NPT Male w/ Snubber 2F = 1/4-18 NPT Female 4M = 1/2-14 NPT Male J7 = 7/16 -20 UNF Male SAE #4 (J1926-2) J9 = 9/16-18 UNF Male SAE #6 (J1926-2) | 11 = 4-20mA 2B = 0-5 VDC 2C = 0-10 VDC 24 = 0.5 - 5.5 VDC 27 = 1 - 5 VDC 28 = 1 - 6 VDC 2R = 1-11 VDC | B1 = 8-4 Bayonet Connector B3 = 10-6 Bayonet Connector E2 = Large DIN 43650 Connector w/Mating Plug A2 = 1/2" Conduit Connector w/1 Meter (3.28 ft.) Leads | H = 0.5% FS | A = Intrinsic Safe* |

*Note: Intrinsically safe transducers are available with amplified outputs only. (ETL, entity approved for Class 1 Division 1, Groups C & D, hazardous areas; Class 1 Divisions 1 and 2, Groups C & D for electrical termination Code E2 and A2.

Please contact factory for configurations not shown.

SSP516 Rev.B 09/26/06