

Model 516

Industrial OEM Pressure Transducers

Gauge, Vacuum, 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 specification is 4 x full scale with less than a 1.0% zero shift.

The 516 enclosure is rated for NEMA 4/IP65 and IP30 operation, and protected against the ingress of dust, or water resulting from jet spray, and from contact of small tools, wires, etc., that could affect performance.

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), operating temp-

eratures as low as -22°F to 260°F (-40°C to 125°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

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. Using a custom designed ASIC to perform amplification and temperature calibration, each parameter can be fine tuned for optimal performance. This design 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
- $\pm 0.5\%$ FS Accuracy
- Intrinsic Safe Option
- NEMA 4/IP65 and NEMA 4/IP30 Rated
- 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.*



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

setra
800-257-3872

Model 516 Specifications

Performance Data

Accuracy RSS* (at constant temp)	±0.5% FS
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, B2, E2 IP68 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)	
w/Elec. Codes B1, B2	-40 to +260 (-40 to +125)
w/Elec. Codes E2, A2	-5 to +180 (-20 to +80)
Storage °F (°C)	
w/Elec. Codes B1, B2	-22 to +260 (-40 to +125)
w/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) 20g, 11ms, per MIL-STD-810E Method 516.4 Procedure 1
Shock	

*Operating temperature limits of the cable.

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 1.0% of Full Scale.

**Temperatures > 100°C/212°F supply is limited to 24 VDC

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

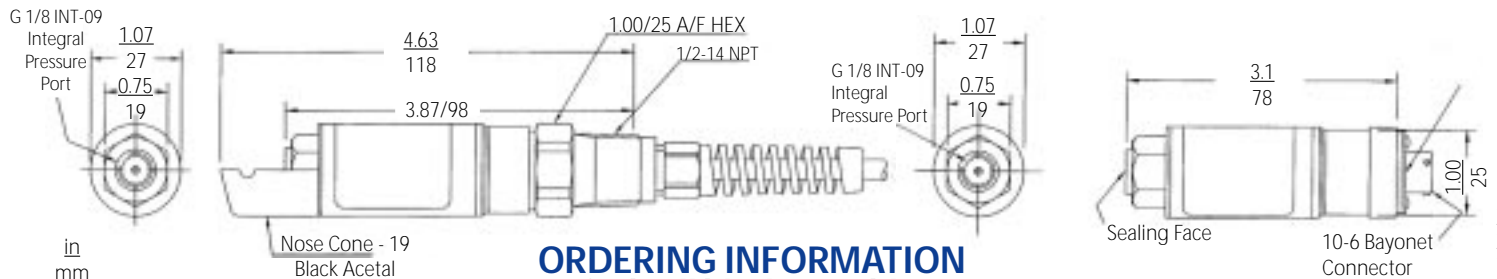
**Temperatures > 100°C/212°F supply is limited to 24 VDC

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



ORDERING INFORMATION

Code all blocks in table.

Example: Part No 5161030PGH11K1L1 - For a Model 516 Pressure Transducer, 30 PSI, Gauge Pressure, 1/8-27 NPT Male Pressure Fitting, 4-20 mA, 10-6 Mil C, 0.5% Accuracy

Model	Range	Pressure	Pressure Fitting	Output	Elec. Termination	Accuracy
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 PSIG 015P = -14.7 to 15 PSIG 045P = -14.7 to 45 PSIG 135P = -14.7 to 135 PSIG 185P = -14.7 to 185 PSIG 285P = -14.7 to 285 PSIG	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 600B = 600 BAR 690B = 690 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-NPT Female 1F = 1/8-27 Female 4M = 1/2-14 NPT Male J7 = 7/16-20 Male (SAE #4, J1926-2) J9 = 9/16-18 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 B3 = 10-6 Bayonet E2 = Large DIN 43650 Plug w/Mating Plug A2 = 1/2" Conduit Connector w/1 Meter Leads	H = 0.5% FS

Please contact factory for configurations not shown.