

## Model 512

### Industrial OEM Pressure Transducer

Gauge, Vacuum, and Compound Pressure



**S**etra System's Model 512 OEM pressure transducer is designed to withstand pressure spikes, shock, and vibration caused by the harsh physical and environmental conditions of industrial applications.

The Model 512'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 512 enclosure is rated for NEMA 4/IP65 operation, and when coupled with the IP67 rated weatherproof cable gland, the unit is fully protected against the ingress of dust, or water resulting from jet spray or immersion, 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 512 offers 0.5% FS accuracy, compensated temperature range of -5°F to

+180°F (-20°C to 80°C), operating temperatures 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 512'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
- NEMA 4/IP65 and NEMA 6/IP67 Rated
- High Shock Resistance
- Meets  $\llcorner$  Conformance Standards

*When it comes to a product to rely on - choose the Model 512 . When it comes to a company to trust - choose Setra.*



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**800-257-3872**

# Model 512 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 E1 and N1 IP67 for Elec Code N2
Wetted Parts	17-4 PH Stainless Steel

## Physical Description (Cont'd)

Electrical Connection	4-Pin MINI DIN Connector IP67 Weatherproof Cable Gland NEMA 4 Cable
Pressure Fitting	See Ordering Information Below
Weight	3.5oz (100g)

## Environmental Data

Temperature	
Operating* °F (°C)	
w/ Elec Code E1	-22 to +260 (-40 to +125)
w/ Elec. Code N1	-5 to +180 (-20 to +80)
w/ Elec. Code N2	-5 to +125 (-20 to +50)
Storage °F (°C)	
w/ Elec Code E1	-22 to +260 (-40 to +125)
w/ Elec. Code N1	-5 to +180 (-20 to +80)
w/ Elec. Code N2	-5 to +125 (-20 to +50)
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 temperature limits of the connector only.  
Pressure media temperatures may be considerably higher or lower.

## 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 5.5 VDC, 1 to 5 VDC, 1 to 6 VDC, 1 to 11 VDC

\*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

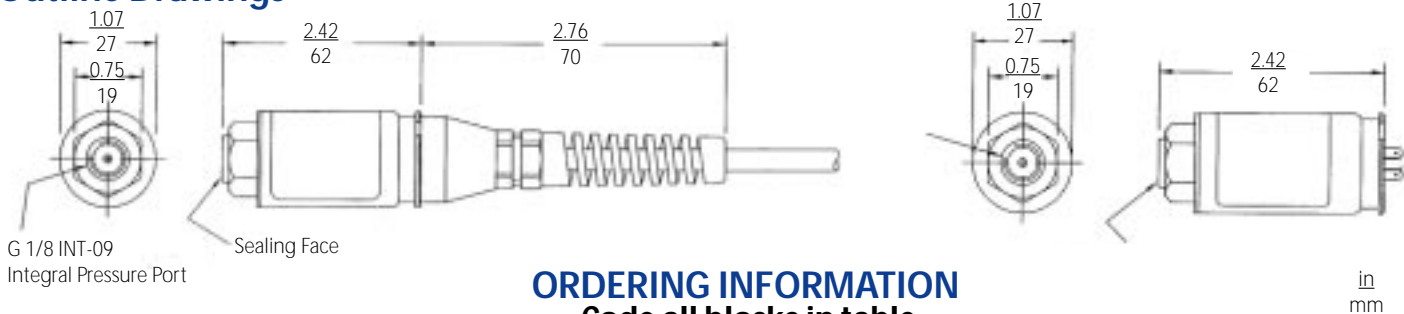
## Pressure Media

Liquids or gases compatible with 17-4 PH Stainless Steel.\*

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

Specifications subject to change without notice.

## Outline Drawings



## ORDERING INFORMATION

Code all blocks in table.

Example: Part No 5121030PGH1106L1 - For a Model 512 Pressure Transducer, 30 PSI, Gauge Pressure, 1/8-27 NPT Male Pressure Fitting, 4-20 mA, Mini Din, 0.5% Accuracy

Model	Range	Pressure	Pressure Fitting	Output	Elec. Termination	Accuracy	Option
512 = 5121	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 205B = 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 4M = 1/2-14 NPT Male J6 = 7/16-20 Male (SAE 4, J1926-2) J7 = 7/16-20 Male (SAE #4, J1926-2) J8 = 7/16-20 Female w/Seal Cone 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	E1 = 4-Pin MINI DIN Connector N2 = IP 67 Weatherproof Cable Gland (3ft Depth, Max.) N1 = NEMA 4 Cable	H = 0.5% FS A = Intrinsic Safe (ETL approved for Class 1, Div. 1, Groups C & D, hazardous areas.)

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.

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