Model 209
Pressure Transducers

NOTE: Setra quality standards are based on ANSI-Z540-1.
The calibration of this product is NIST traceable.
U.S. Patent nos. 6019002; 6014800

DESCRIPTION

The Model 209 pressure transducer is designed for industrial applications with demanding price and performance requirements. The 209 offers exceptional reliability in typical industrial grade environments. Standard features tailor the Model 209 for applications with more extreme environmental conditions or more stringent performance needs. The Model 209 offers unparalleled performance in a configurable transducer designed specifically for the budget conscious OEM.

Setra's proven center mount electrode configuration is the heart of this simple, yet industrialized design. A 17-4 Stainless steel sensor and a rigid stainless steel electrode form the variable capacitor.

The 209 transducer is packaged in a rugged stainless steel valox housing, which is small and lightweight for optimum compatibility with system designs. As a totally self-contained package, the 209 stainless steel capacitance sensing element, coupled with a high level output IC-based circuit, assures excellent accuracy and long term stability.

ISO 9001

FEATURES

- High Over Pressure Option Available on Selected Ranges
- Rugged Design Withstands Harsh Environments
- Operates Over a Wide Temperature Band
- Compatible w/ Wide Range of Gases & Liquids
- Operates on Low Cost Unregulated DC Power
- Suitable for High Shock & Vibration Applications
- No Seals or "O" Rings to Cause Leakage
- No Brazed Joints Susceptible to Corrosion Problems
- 3 to 5 Day Shipment for Small Quantities, Standard Configurations
- CE & RoHS Compliant

APPLICATIONS

- Industrial OEM Equipment
- Hydraulic Systems
- Compressor Control
- HVAC/R Equipment
- Industrial Engines
- Industrial Refrigeration

GAUGE, COMPOUND & VACUUM PRESSURE RANGES

	STANDARD		OPTION	
Full Scale Range (PSI)	Proof Pressure (PSI)	Burst Pressure (PSI)	High Proof Pressure (PSI)	High Burst Pressure (PSI)
1	2	250	N/A	N/A
2	4	250	N/A	N/A
5	10	250	N/A	N/A
10	20	500	N/A	N/A
25	50	500	N/A	N/A
50	100	750	800	5000
100	200	1000	1000	5000
200	400	2000	1500	5000
250	500	2000	2000	8000
500	1000	3000	2500	10,000
1000	2000	5000	4000	10,000
1500	2500	6000	5000	12,000
2000	3000	6500	N/A	N/A
3000	4500	7500	N/A	N/A
5000	7500	10,000	N/A	N/A
10,000	12,500	20,000	N/A	N/A
-14.7 (Vacuum)	10	15	N/A	N/A

*Also available in Bar ranges. Consult Factory.

Gauge Pressure: Pressure measured relative to ambient atmospheric pressure. Referred to as pounds per square inch (gauge) or psig.

Proof Pressure: The maximum pressure that may be applied without changing performance beyond specifications (± 0.5% FS zero shift).

Burst Pressure: The maximum pressure that may be applied to the positive pressure port without rupturing the sensing element.

Model 209
Pressure Transducers

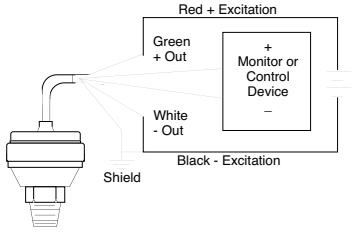
SPECIFICATIONS

Performance Data		Environmental Data		Electrical Data (Voltage)	
Accuracy RSS[1] (at constant temp)	±0.25% FS	Operating[3] Temperature °F (°C)	-40 to + 185 (-40 to +85)	Circuit	3-Wire (COM, OUT, EXC)
Non-Linearity, BFSL	±0.22% FS	Storage Temperature °F (°C)	-40 to + 185 (-40 to +85)	Excitation	9 to 30 VDC
Hysteresis	0.10% FS	Shock[3]	200g operating	Output[6]	0.5 to 5.5 VDC[7]
Non-Repeatability	0.05% FS	Acceleration	10 g Maximum[5]	Output Impedance	10 ohms
Thermal Effects		Shock[3]	200g Operating	**Electrical Data (Current)**	
Compensated Range °F (°C)	-4 to +176 (-20 to +80)	Vibration[4]	20g	Circuit	2-Wire
Zero Shift %FS/100°F (%FS/50°C)	±2.0 (±1.8)	Environmental Protection	Weather Resistant	Output[8]	4 to 20mA[9]
Span Shift %FS/100°F (%FS/50°C)	±1.5 (±1.3)	**Physical Description**		External Load	0 to 800 ohms
Warm-up Shift	0.1% FS Total	Case	Stainless Steel & Valox	Minimum supply voltage (VDC)	9+ 0.02 x (Resistance of receiver plus line)
Response Time	5 milliseconds	Sensor	17-4 PH Stainless Steel	Maximum supply voltage (VDC)	30+ 0.004 x (Resistance of receiver plus line).
Long Term Stability	0.5% FS/1 YR	Electrical Connection	2 ft. multiconductor cable	[1] RSS of Non-Linearity, Hysteresis, and Non-Repeatability. [2] Note: Hydrogen not recommended for use with 17-4 PH Stainless Steel. [3] Mil-Std. 202, Method 213B, Cond. C [4] Mil-Std. 202, Method 204, Cond. C [5] See ordering information for other fittings available (minimum quantities apply).	
Pressure Media		Pressure Fitting[5]	1/4"-18 NPT external, 17-4 PH Stainless Steel	[6] Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater. [7] Zero output factory set to within ±50mV. Span (Full Scale) output factory set to within ±50mV. [8] Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load. [9] Zero output factory set to within ±0.16mA. Span (Full Scale) output factory set to within ±0.16mA. Specifications subject to change without notice.	
Liquids and gases compatible with 17-4 PH Stainless Steel.[2]		Vent	Through cable		
		Weight (approx.)	2.3 ounces (65 grams)		

WIRING

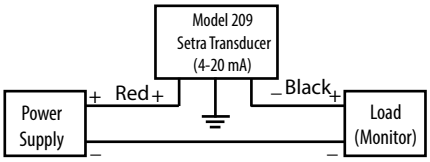
Voltage Output

The Model 209 voltage output is a 3-wire circuit. If the 209 is supplied with 2 feet of cable, the electrical connection is as follows:



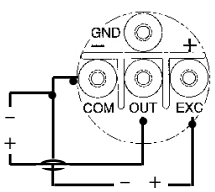
Current Output

The Model 209 True 2-wire device. If the 209 is supplied with 2 feet of cable, the electrical connection is as follows:

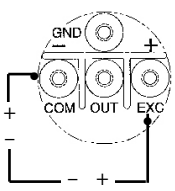


Conduit Version

Voltage

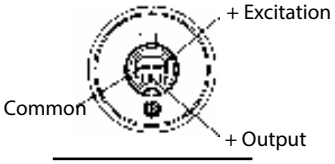


Current



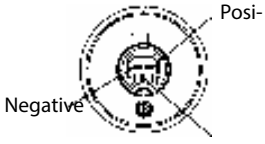
Hirschmann Connectors

Voltage



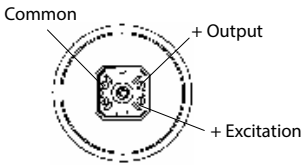
Top View: 3-Pin Packard Connector
Type: P2S Series 150

Current



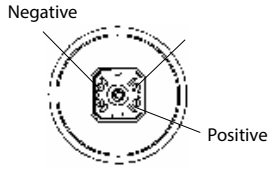
Top View: 3-Pin Packard Connector
Type: P2S Series 150

Voltage



Top View: Hirschmann Connector
Type: G4A1M#931807-106

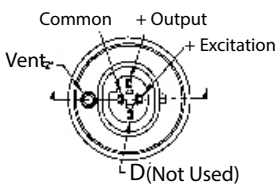
Current



Top View: Hirschmann Connector
Type: G4A1M#931807-106

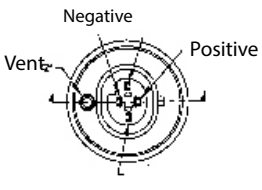
4-Pin Packard Connector

Voltage



Top View: 4-Pin Packard Connector
Type: Metri-Pack 150

Current



Top View: 4-Pin Packard Connector
Type: Metri-Pack 150

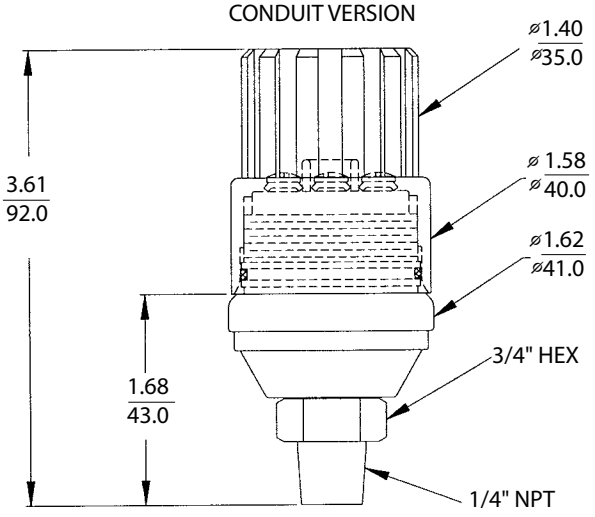
 Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com

Model 209

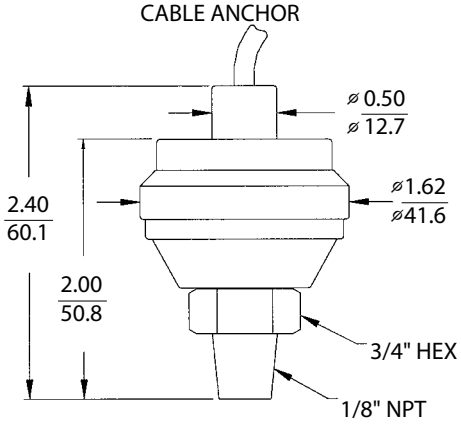
Pressure Transducers

DIMENSIONS

CONDUIT VERSION

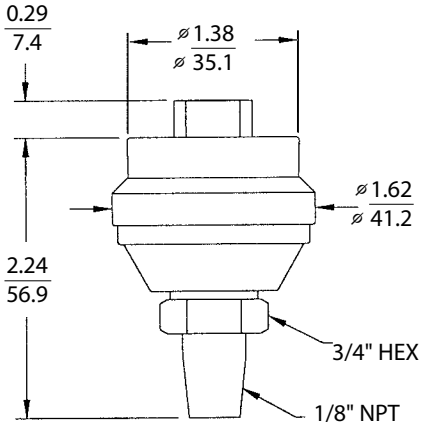


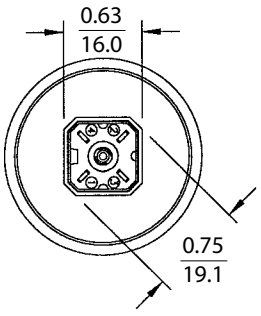
CABLE ANCHOR



OPTIONAL HIRSCHMANN CONNECTOR
Type: G4A1M #931807-106

in.
mm

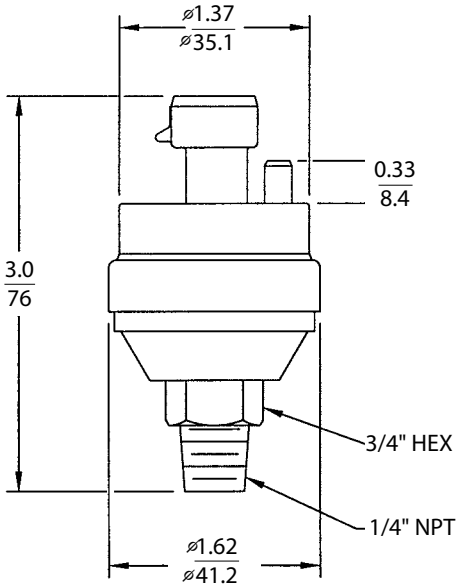


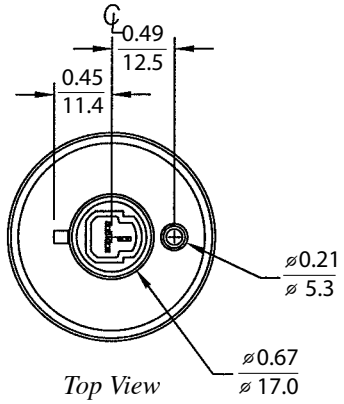


Top View

Mating Hirschmann Connector G4WIF available. See table below to order.

OPTIONAL 3-Pin PACKARD CONNECTOR
Type: P2S Series 150





Top View

Mating Packard Connectors available. See table below to order.

Model 209
Pressure Transducers

ORDERING INFORMATION

2 0 9 1 – [ ][ ][ ][ ] – [ ] – [ ][ ] – [ ][ ] – [ ][ ] – [ ]

Model	Range Code	Pressure Type		Pressure Fitting		Output		Elec. Termination		Options	
2091 = 209	See Table 1 Below	G	Gauge	2M	1/4" NPT Male	11	4-20 mA	XX	Cable length in feet[1]	H	High Overpressure Capability (Only available on 25 PSI up to 1500 PSI Pressure Ranges)
		C	Compound	J7	7/16" SAE Male	24	0.5 to 5.5 VDC	P1	Packard (3-Pin)[2]		
		S	Sealed*	1M	1/8" NPT Male	28	1 to 6 VDC	P3	Packard (4-Pin)[3]		
		V	Vacuum	L4	1/4 Female SAE	45	0.5 to 4.5 VDC	H2	Hirschmann, ("Mini")[4]		
				G4	1/2" A Male			A1	Terminal Block w/ Conduit Cover		
				P1	1/8" NPT Female Bulkhead (Available on Ranges > 50 PSI)						

[1] i.e., 2 feet = 02
[2] Order Setra Part #577 for Mating Connector
[3] Order Setra Part #857 for Mating Connector
[4] Order Setra Part #590 for Mating Connector

Note: Order mating connectors direct from manufacturers:
Mfr. Part #12103881-L/#12065287/#1203-4413 = Setra's Part #577
Mfr. Part #12065298/#12066176/#12048086 = Setra Part #857
Mfr. Part #932157-106 = Setra Part #590

Table 1. Range Specification

RANGE CODE	PSI
001P	0 to 1
002P	0 to 2
005P	0 to 5
010P	0 to 10
025P	0 to 25
050P	0 to 50
100P	0 to 100
200P	0 to 200
250P	0 to 250
500P	0 to 500
10CP	0 to 1000
15CP	0 to 1500
20CP	0 to 2000
30CP	0 to 3000
50CP	0 to 5000
10KP	0 to 10000
Z01P	0 to -14.7 PSI

*Sealed Version Available on 200 PSI Range and Above)

NOTE: Standard configuration consists of: PSI Range, 1/4" NPT Fitting and 2 feet of cable (up to 25 feet of cable can be ordered) . (Minimum quantities apply for all other configurations. Consult a Setra Applications Engineer for assistance.

Ordering Example: 2091001PG2M11XX = Model 209, 0 to1 PSI Range, Gauge Pressure, 14" NPT Male Fitting, 4 to 20 mA Output, 2 ft. Cable.

SSP-209 Rev. J 07/2014

 Phone: 800-257-3872 • Fax: 978-264-0292 • setra.com