

P9000 Series

Digitally Compensated Pressure Transducer

The P9000 Series is the latest addition to the Schaevitz® family of advanced digitally compensated pressure transducers. The unique design of the P9000 pressure transducer utilizes the proven reliability of strain gauge technology and innovative digital compensation electronics. The synergy of these technologies result in an instrument grade pressure transducer. Available in pressure ranges from 75 psi to 10,000 psi (5 bar to 700 bar), the P9000 series can be configured with a variety of pressure ports, electrical outputs, and termination options to meet most pressure sensing needs.

The P9000 Series incorporates 12 bit digital compensation electronics to ensure precise calibration of all critical parameters. This unique circuit design also provides a significant advantage of maintaining a true analog "through-path" resulting in an exceptionally fast response of 1000 Hz without a sacrifice in accuracy. Error contribution sources are digitally corrected to guarantee repeatable performance and eliminate the need for user calibration. Combined nonlinearity hysteresis and non-repeatability errors are guaranteed to be less than $\pm 0.08\%$ F.R.O. with total thermal error limited to 0.004% F.R.O./°C over an extended industrial temperature range of -4°F to 185°F (-20°C to 85°C).

The P9000 series delivers the advantages of a 17-4 PH diaphragm offering a true stainless steel isolation barrier with high burst pressures, at 20x the rated pressure, and a proof pressure, up to 5x the rated pressure. Housed in a rugged 316 stainless steel, NEMA 4X, IP67 enclosure with guaranteed shock resistance of up to 1000g for 2msec, and vibration to $\pm 20g$, the P9000 provides a robust solution for a wide variety of demanding pressure applications and environments.

Available in both cable and connector outlets, the P9000 is offered in various electronic outputs: four wire 0-10 V, four wire 0 to 5 V and a 2 wire 4-20 mA intrinsically safe certified version. The P9000 can be configured to give 3 wire 1 to 6V or 1 to 11V output. All P9000 units are constructed under an ISO 9001 environment. Each unit is serialized and shipped with a calibration certificate guaranteeing the highest quality and reliability found in an instrument grade pressure transducer.



Features

- Guaranteed accuracy of less than $\pm 0.08\%$ F.R.O.**
- Intrinsically safe option to class EEx ia IIc T4 ($T_{amb}=60^{\circ}C$) BASEEFA CENELEC EN50-020**
- Rugged stainless steel construction**
- Pressure ranges: 0-75 psi to 10,000 psi (0 - 5 bar to 0 - 700 bar)**
- 5x overload capacity**
- IP67, NEMA 4x rated**
- Long term stability 0.1% F.R.O. per annum**
- Thermal performance: $<0.002\%$ F.R.O./°F ($<0.004\%$ F.R.O./°C)**
- Standard, non-IS models are CE certified**

Applications

- Hydraulic and pneumatic controls**
- Steel and aluminum rolling mills**
- Pulp and paper mills**
- Automotive test stands**
- Power generation**
- Off-shore oil exploration**

Select P9000 models, when correctly installed, are CE certified to comply with the EMC Directive 89/336/EEC Generic Standards for Residential, Commercial, Light Industrial and Industrial Environments.



P9000 Series Foil Strain Gauge
 Pressure Ranges: 0-75 to 0-10,000 psi
 (0-5 to 0-700 bar)
 Nonlinearity: $\pm 0.08\%$ F.R.O.

Specifications by Model (All specifications are at 20°C unless otherwise noted)

Series	P9060	P9070	P9080 ¹
Model Numbers	P9061/4	P9071/4	P9081/4
Input Voltage	10 to 36 VDC	15 to 36 VDC	10 to 36 VDC
Current (mA) max	< 6	< 6	N/A
Output (F.R.O.)	5 V \pm 0.3%	10 V \pm 0.3%	4-20 mA (16 mA \pm 0.3%)
Impedance (ohms)	< 1	< 1	—
Load Resistance (Ohms Min.)	1000	2000	1300 max at 36 V
Frequency Response	1 kHz	1 kHz	1 kHz
Combined Nonlinearity, Hysteresis and Nonrepeatability			
High Range % F.R.O. (BSL)	± 0.05 typ	± 0.05 typ $\pm 0.08\%$ max	± 0.05 typ
Combined Thermal Zero & Sensitivity Error: (calculated from end points of temp. range)			
The output will not deviate from 20°C by more than 0.5% F.R.O., over a temperature range of -20 to +80°C.			
% F.R.O./°F	± 0.002	± 0.002	± 0.002
% F.R.O./°C	± 0.004	± 0.004	± 0.004
Residual Unbalance % F.R.O.	0 Volts \pm 0.3%	0 Volts \pm 0.3%	0 Volts \pm 0.3%
Weight oz (gm) max (0001 version)			
Connector Version	5.11 (145)	5.11 (145)	5.11 (145)
Cable Version	6.35 (180)	6.35 (180)	5.64 (160)

¹Model P9080 is registered as an intrinsically safe transducer to Class ia IIC T4 BASEEFA, Cenelec EN50 - 020.

Common Specifications (all specifications are at 20°C unless otherwise noted)

Pressure Ranges

High **psi**..... 0-75; 100; 150; 200; 250; 350; 500; 750; 1000; 1500; 2200; 2500; 3500; 5000; 7500; 10,000
 bar..... 0-5; 7; 10; 15; 20; 25; 35; 50; 70; 100; 150; 200; 250; 350; 500; 700

Pressure References

High Pressure Range Vented gauge³: 0-75 to 0-350 psi
 Absolute and sealed gauge: 0-75 to 0-10,000 psi

Pressure Limit $\geq 5x$ full range scale pressure or 12,000 psi (830 bar), whichever is less

Burst Pressure $\geq 20x$ rated pressure range or 22,000 psi (1500 bar), whichever is less

Pressure Media Liquids or gases compatible with 17-4 PH and 17-7 PH stainless steel

Temperature Range

Operable -40°F to 212°F (-40°C to 100°C)

Compensated -4°F to 176°F (-20°C to 80°C)

Storage -40°F to 257°F (-40°C to 125°C)

Humidity

Connector Version 95% Relative Humidity

Cable Version Immersible to IP67 (fluid must not enter ends of cables)

Vibration Surpasses MIL STD 810C Method 514-2 Curve L

Shock 1000g for 2 msec will not damage sensor

Insulation Resistance 500 Mohm at 50 VDC

Long Term Drift 0.1% F.R.O./year (0.25% F.R.O. for first 6 months)

EMC CE Approved

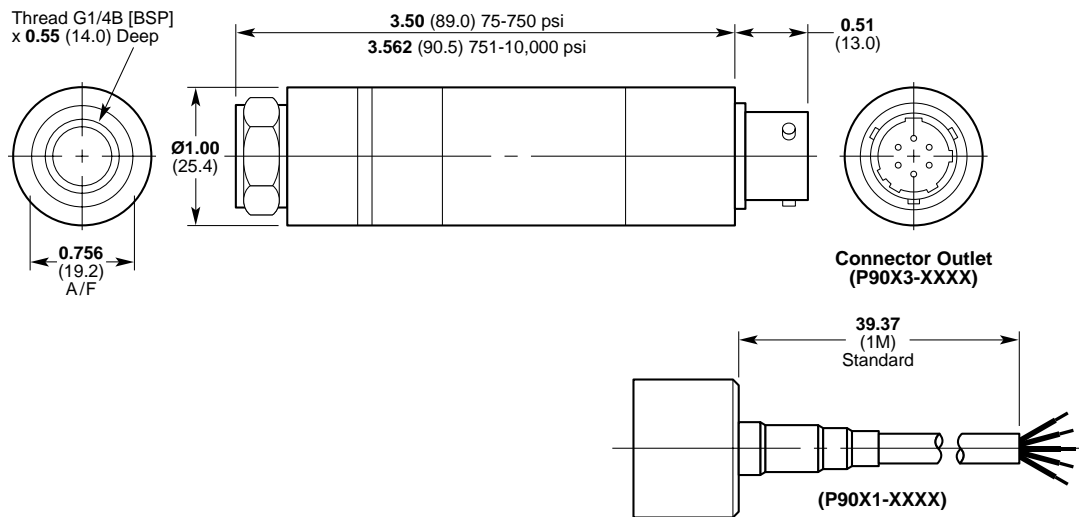
The P9060, P9070 and P9080 Series when correctly installed comply with the EMC Directive 89/336/EEC Generic Standards for Residential Commercial, Light Industrial and Industrial environments. Note: The Industrial environment cannot be complied with when the P9080 series is used in Intrinsic Safety applications where only one earth connection is made.

³ Vented gauge units must only be used in dry, noncorrosive environments and will breathe through the cable vent tube or hole in the 6-way receptacle.

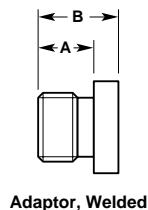
P9000 Series

Advanced Digitally Compensated Pressure Transducer

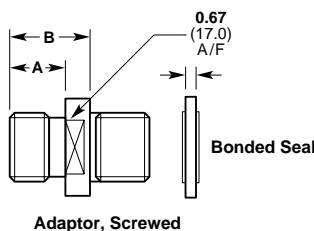
Dimensions in (mm)



Adapters



Thread Size	Code	Dimensions in (mm)	
		A	B
G1/4A (BSP) (M)	0002	0.46 (11.7)	0.67 (16.9)
M14 x 1.5 (M)	0003	0.40 (10.2)	0.61 (15.4)
7/16"-20UNF-2A (M)	0004	0.56 (14.3)	0.77 (19.5)
1/4"-18NPT (M)	0005	0.55 (14.0)	0.76 (19.2)
M10 x 1.0 (F)	0006	—	0.60 (15.2)

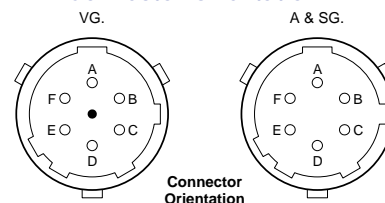


Thread Size	Screwed	Dimensions in (mm)	
		A	B
G1/4A (BSP) (M)	0022	0.46 (11.7)	0.70 (17.8)
M14 x 1.5 (M)	0023	0.40 (10.2)	0.62 (15.8)
7/16"-20UNF-2A (M)	0024	0.56 (14.3)	0.78 (19.8)
1/4"-18NPT (M)	0025	0.55 (14.0)	0.80 (20.4)
M10 x 1.0 (M)	0026	—	0.60 (15.2)

Connections

Cable	Connector**	
Red*	Pin A*	Excitation (+)
White	Pin D	Excitation (-)
Yellow	Pin B	Output (+)
Blue*	Pin C*	Output (-)
Violet	Pin E	No connection
Grey	Pin F	Factory use only

Connector Orientation



Note: Screen is connected to the case for CE marked units. Screen is **not** connected to the case for optional IS units (P9080). IS certification revokes CE certification.

* 2-wire connections (max cable length 50 meters when IS)

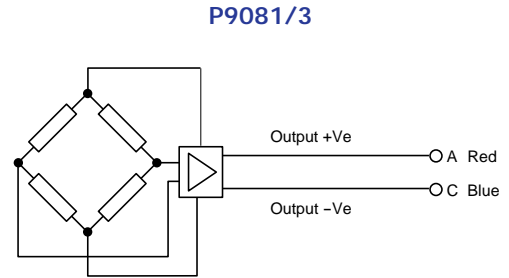
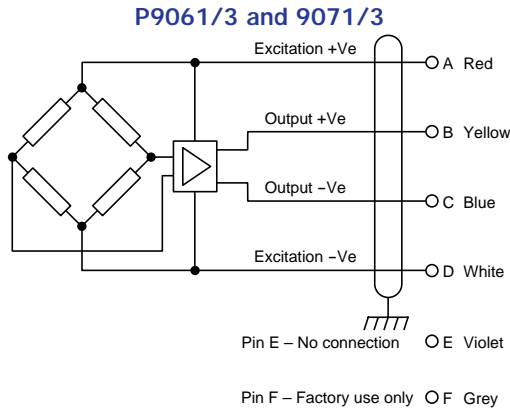
**Vented gauge units must breathe through the receptacle (mating connector must have a vent hole)

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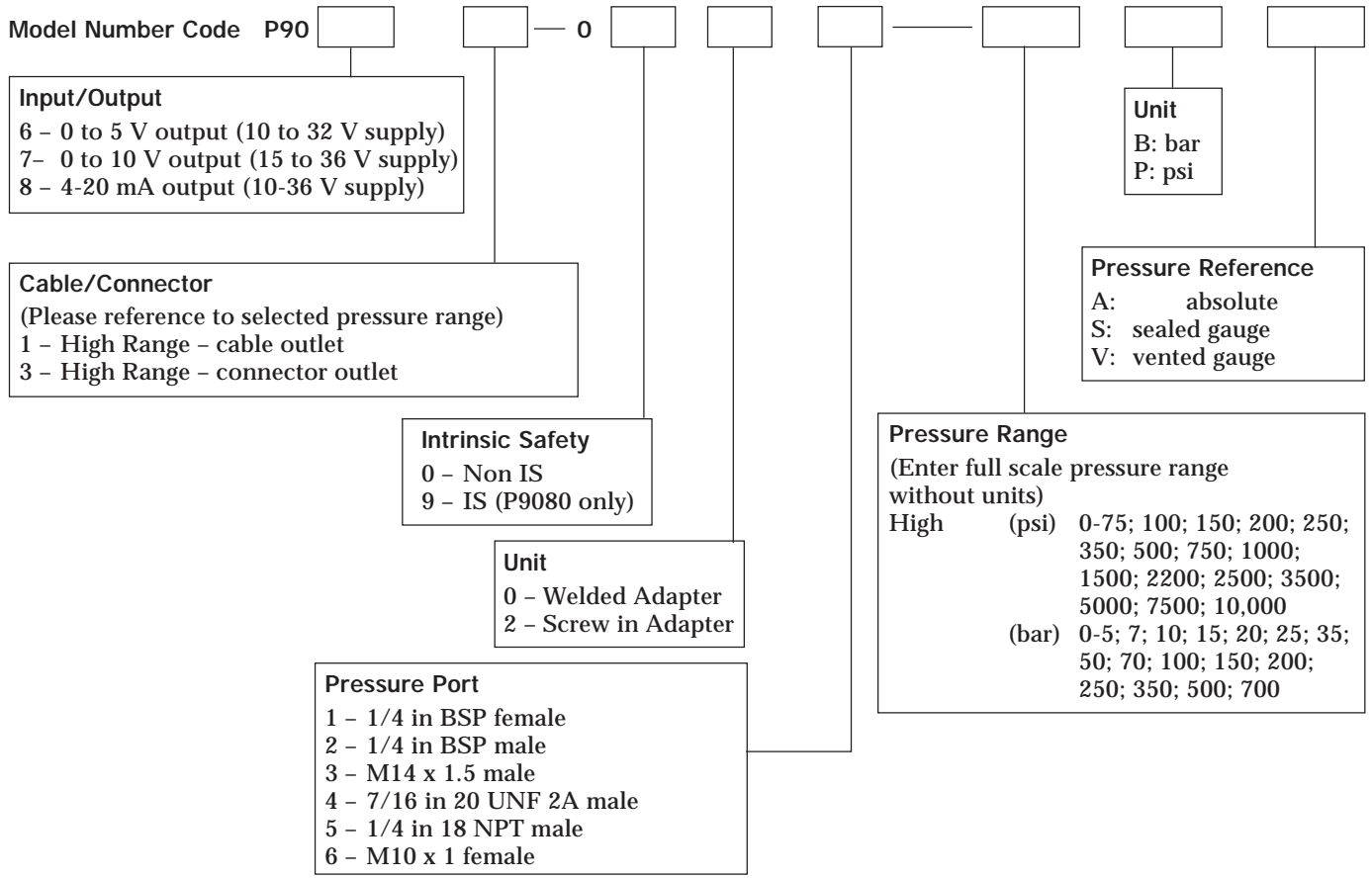
Wiring



How to Order

Specify by transducer excitation, electrical interface, pressure port, pressure range, units, and pressure reference. Example: P9061-0005-10 BA signifies a pressure transducer with 0 to 5 VDC output operating from 10-36V, cable outlet and 1/4 inch-18 NPT male pressure port, pressure range of 0 to 10 bar, with an absolute pressure reference.

Corrosion resistant pressure transducers are available with wetted parts manufactured from Inconel 625 – consult factory for specifications.



CONTATO

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