





# **P900**

# **SPECIFICATIONS**

- Field proven rugged construction
- High overpressure capability
- High reliability for demanding environments
- Application specific customization
- Excellent media compatibility
- Shock and vibration resistant

P900 Series Strain Gauge Pressure Transducers are premium grade sensors that provide highly precise measurement of absolute, vented gauge, or sealed gauge pressures over wide temperature ranges. Standard versions of this transducer use a 17-4 PH stainless steel diaphragm to sense pressure (Inconel versions are available for operation in highly corrosive environments). The deflection of the diaphragm is transferred to a double cantilever beam by a force transfer rod. Strain in the beam, and therefore, input pressure is measured by four foil strain gauges. An all-welded construction provides high reliability and stability. Capable of sensing extremely small changes of applied pressure, the transducers are relatively insensitive to vibration, attitude, and shock. The P900 Series Pressure Sensors are available in a range of electrical inputs and outputs. Zero and span potentiometers are available as a special option with the P940, P950, P960, and P990 models. Non-standard pressure ranges are available in all models of the P900 Series.

For parts requiring RoHS compliance, please contact factory.



## **FEATURES**

- High Overload capability ٠
- **Operation in High Temperatures** •
- Shock and Vibration Resistant •
- 2-wire, 4-20 mA option; Intrinsic Safety • Approval to E Exia IIC T4 (Tamb=60°C) BASEEFA, CENELEC EN50-020

# **APPLICATIONS**

- Hydraulic Pressure Monitoring •
- **Torpedo Depth Sensing** •
- Vehicle Brake System Monitoring •
- Military and Commercial Aircraft •

### PERFORMANCE SPECS

Series	P900	P910	P940	P950	P960	P970	P980	P990
Model Number	P901/904	P911/4	P941/4	P951/4	P961/4	P971/4	P981/4	P991/4
Input Voltage	10VDC (12 V max)	10VDC (12 V max)	10VDC	11-18VDC	18-32VDC	15-36VDC	10-36VDC	±15VDC
Current Consumption(mA)	13	30	20	20	20	20	-	20
Full Range Output (±1%)	20mV	20mV	5VDC	2.5VDC	5VDC	10VDC	4-20mA	5VDC
Impedance (ohm)	1000 ±5%	350	<10	<10	<10	<10	Load Resist. 1300 max. at 36VDC	<10
Current (mA max)	-	-	5	5	5	5	-	5
Frequency Response	Approx. 2.5 kHz to 40 kHz for .7 bar	Approx. 2.5 kHz to 40 kHz for .7 bar	1 kHz	1 kHz	1 kHz	1 kHz	100 Hz	1 kHz
Combined Thermal – Zero & Sensitivity Shift								
% F.R.O./°F	±0.008	-	±0.008	±0.008	±0.008	±0.008	±0.008	±0.008
% F.R.O./°C	±0.015	±0.007	±0.015	±0.015	±0.015	±0.015	±0.015	±0.015
Residual Unbalance								
% F.R.O.	±1	±1	±1	±1	±1	±1	±1	±1
Weight oz (gm)								
Connector Version	4.4 (125)	4.4 (125)	5.1 (145)	5.1 (145)	5.1 (145)	5.1 (145)	5.1 (145)	5.1 (145)
Cable Version	5.6 (160)	5.6 (160)	6.3 (180)	6.3 (180)	6.3 (180)	6.3 (180)	6.3 (180)	6.3 (180)

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# **COMMON SPECIFICATIONS**

Pressure Ra	nges
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High	(psi)	0-75, 100, 150, 200, 250, 350, 500, 750, 1000, 1500, 2200, 3500, 5000, 7500, 10,000					
	(bar)	0-5, 7, 10, 15, 25, 35, 50, 70, 100, 150, 200, 250, 350, 500, 700					
Medium	(psi)	0-10, 15, 20, 25, 35					
	(bar)	0-0.7, 1.0, 1.5, 1.7, 2.5					
DIN	(bar)	1, 1.6, 2.5, 4, 6, 10, 16, 25, 40, 60, 100, 160, 250, 400, 600					
Pressure	References						
High Pressure Range		Vented gauge 1: 0-75 to 0-350 psi					
		Absolute and sealed gauge: 0-75 to 0-10,000 psi					
Medium	Pressure Range-Ve	nted gauge1 and absolute: 0-10, 15, 20, 25, 35 psi (0-0.7, 1.0, 1.5, 1.7, 2.5 bar)					
Pressure Limit 5x		5x full range pressure or 12,000 psi (830 bar), whichever is less. Will not cause a zero offset exceeding 0.04% FRO (recoverable within a few hours)					
Burst Pre	essure	20 x full range pressure or 22.000 psi (1.520 bar), whichever is less					
Pressure	Media	Liquids or gases compatible with 17-4 PH and 17-7 PH stainless steel or Inconel 625					
Shunt Ca	libration	80% ±5% full range pressure (not fitted in P980 Series)					
Combine	d Non-linearity,						
Hysteres	is						
and Non-	repeatability	High Range: <±0.10% F.R.O. (BSL); Medium Range: <±0.20% F.R.O. (BSL)					
Tempera	ture Range						
Operable	•	-65°F to 250°F (-54°C to 120°C) <b>P91X</b> : -65°F to 300°F (-54°C to 150°C)					
Compens	sated 32°F to 212°F (0°C to 100°C) <b>P91X</b> : -65°F to 250°F (-54°C to 120°C) or -4°F to 176°F (–20°C to +80°C)						
Storage -65°F to 300°F (-54°C to 150°C)		-65°F to 300°F (-54°C to 150°C)					
Humidity	,						
Connecte	or Version	95% Relative humidity					
Cable Ve	rsion	Immersible to IP67 (fluid must no enter the ends of the cable)					
Accelera	tion Response Abo	ve 500 psi (35 bar) ±0.02% F.R.O./g; below 500 psi (35 bar) ±0.10% F.R.O./g					
Vibration	1	Surpasses MIL STD810C Method 514-2 Curve L and EUROCAE ED 14A/RTCA 160A					
Shock		1000 g for 5 msec will not damage the sensor					
EMC		The P940, P950, P960 and P980 and P990 Series are CE marked, and when correctly installed comply with the					
		EMC Directive 89/336/EEC Generic Standards for Residential Commercial, Light Industrial and Industrial					
		environments. Note: The P980 Series when used in Intrinsic Safety applications does not comply with the					
		Industrial environment directive.					
Insulatio	n Resistance 50	0 MOhm at 50 VDC at 25°C					
<sup>1</sup> Vented	gauge units must on	ly be used in dry, noncorrosive environments and will breathe through the cable vent tube or hole in the 6-way					
		receptacle.					
Total The	ermal Error Band (F	'91X only)         -20°C to +80°C         <±0.4% FRO Typical, <±0.6% FRO Maximum           -54°C to +120°C         <±0.7% FRO Typical, <±1.0% FRO Maximum					



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### **DIMENSIONS**



Connector: MIL-C-26482, Shell Size 10, 6 PIN

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# **ADAPTERS**

Code E Thread Size	Dimensions in (mm) Welded	Α	B 1/4" BSP (F)
G1/4A (BSP) (M) M14 x 1.5 (M)	0002 0003	0.46 (11.7) 0.40 (10.2)	0.67 (16.9) 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)
1/4-18NPT (F)	0009	_	0.76 (19.2)
<b>Thread Size</b> G1/4A (BSP) (M) M14 x 1.5 (M) 7/16"-20UNE-2A (M)	Screwed 0022 0023 0024	<b>A</b> 0.46 (11.7) 0.40 (10.2) 0.56 (14.3)	<b>B</b> 0.70 (17.8) 0.62 (15.8) 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)
	Diameter C		
Range	in (mm)		
10 psi (0.7 bar)	1.143 (29.05)		
15 psi (1.0 bar)	1.043 (26.50)		
20 psi (1.5 bar)	0.888 (22.50)		
25 psi (1.7 bar)	0.807 (20.50)		
35 psi (2.5 bar)	0.748 (19.00)		

### **CONNECTIONS**

Cable	Connector <sup>2</sup>			
Red <sup>1</sup>	Pin A <sup>1</sup> Excitation (+)			
White	Pin D Excitation (-) <sup>3</sup>			
Yellow	Pin B Output (+)			
Blue <sup>1,3</sup>	Pin C <sup>1,2</sup> Output $(-)^3$			
Violet	Pin E			
Grey	Pin F $\int 80\%$ shunt calibration <sup>4</sup>			

Note: Screen is connected to the case for CE marked units. Screen is not connected to the case for optional IS units (P980). IS certification revokes CE certification.

- 1. 2-wire transmitter connections
- 2. Vented gauge units must breathe through the receptacle (mating connector must have a vent hole)
- 3. 0 Volt P990 series
- 4. Connected internally for P940, P950, P960 Series (3-wire)

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5. Shunt calibration not fitted to P980 Series

Connector Orientation



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**WIRING** 



P901/9, P910/9



P991/9

P981/9







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#### **ORDERING INFORMATION**



Examples: P963025150PSS = 0 to 5V output from 18 to 32V supply, connector outlet, screwed in ¼" NPT port, 150 psi sealed gauge P914001- 2.5BAA = 20mV output, connector outlet, welded ¼" BSP female port, 2.5 bar absolute

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