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
- Operation in High Temperatures
- Shock and Vibration Resistant
- 2-wire, 4-20 mA option; Intrinsic Safety Approval to E Exia IIC T4 (T_{amb}=60°C) BASEEFA, CENELEC EN50-020

APPLICATIONS

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

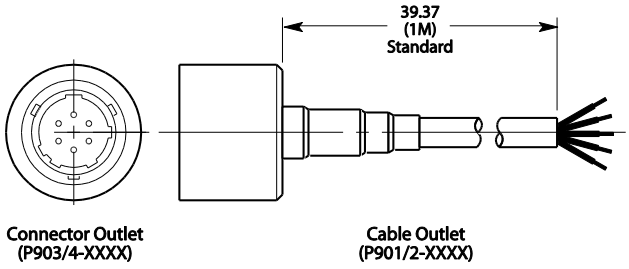
PERFORMANCE SPECIFICATIONS

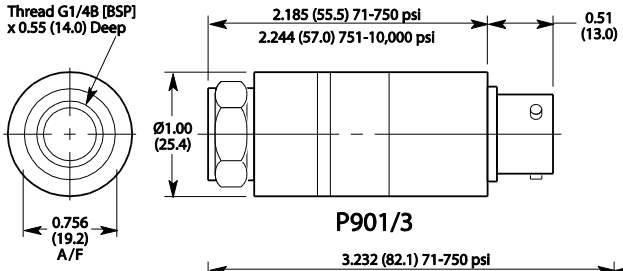
Series	**P900**	**P910**	**P940**	**P950**	**P960**	**P970**	**P980**	**P990**
Model Number	P901/904	P911/4	P941/4	P951/4	P961/4	P971/4	P981/4	P991/4
Input Voltage	10V_{DC} (12 V max)	10V_{DC} (12 V max)	10V_{DC}	11-18V_{DC}	18-32V_{DC}	15-36V_{DC}	10-36V_{DC}	±15V_{DC}
Current Consumption(mA)	13	30	20	20	20	20	-	20
Full Range Output (±1%)	20mV	20mV	5V_{DC}	2.5V_{DC}	5V_{DC}	10V_{DC}	4-20mA	5V_{DC}
Impedance (ohm)	1000 ±5%	350	<10	<10	<10	<10	Load Resist. 1300 max. at 36V_{DC}	<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)

COMMON SPECIFICATIONS

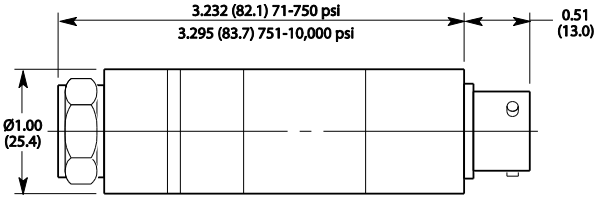
Pressure Ranges		
High	(psi)	0-75, 100, 150, 200, 250, 350, 500, 750, 1000, 1500, 2200, 3500, 5000, 7500,10,000
	(bar)	0-8, 7, 10, 15, 25, 35, 50, 70, 100, 150, 200, 250, 350, 500, 700
Medium	psi	0-10, 15, 20, 25, 35
	bar	0-0.7, 1.0, 1.5, 1.7, 2.5
DIN	bar	1, 1.6 ,2.5 ,4 ,6,10, 16, 25, 40, 60, 100, 160, 250, 400, 600
Pressure References		
High pressure range		Vented gauge: 0-75 to 0-350psi Absolute and sealed gauge: 0-75 to 0-10 ksi
Medium Pressure Range		Vented gauge and absolute: 0-10,15,20,25,35 psi (0-0.7,1.0,1.5,1.7,2.5 bar)
Pressure Limit		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 Pressure		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 Calibration		80% ±5% full range pressure (not fitted in P980 Series)
Combined Non-linearity, Hysteresis and Non-repeatability		High Range: <±0.10% F.R.O. (BSL) Medium Range: <±0.20% F.R.O. (BSL)
Operable Temperature		-65°F to 250°F (-54°C to 120°C) **P91X**: -65°F to 300°F (-54°C to 150°C)
Compensated Temperature		32°F to 212°F (0°C to 100°C) **P91X**: -65°F to 250°F (-54°C to 120°C) or -4°F to 176°F (–20°C to +80°C)
Storage Temperature		-65°F to 300°F (-54°C to 150°C)
Humidity		95% Relative Humidity
Cable Version		Immersible to IP67 (fluid must not enter the ends of the cable)
Acceleration Response		Above 500 psi (35 bar) ±0.02% F.R.O./g; below 500 psi (35 bar) ±0.10% F.R.O./g
Vibration		Surpasses MIL STD810C Method 514-2 Curve L and EUROCAE ED 14A/RTCA 160A
Shock		1000g for 5msec 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.
Insulation Resistance		500 MΩ at 50 V_{DC} at 25ºC
Total Thermal Error Band (P91X only)	-20ºC to 80ºC	<±0.4% FRO Typical, <±0.6% FRO Maximum
	-54ºC to 120ºC	<±0.7% FRO Typical, <±1.0% FRO Maximum

DIMENSIONS

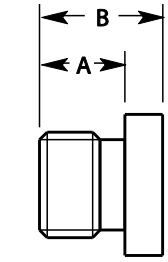




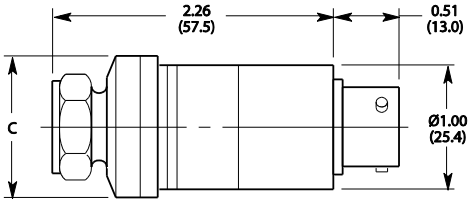
P901/3



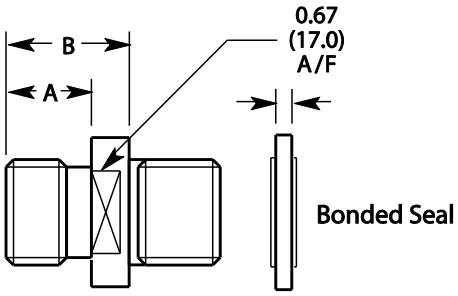
P9X1/3



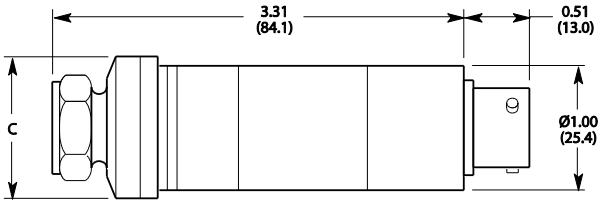
Adaptor, Welded



P902/4



Adaptor, Screwed



P9X2/4

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

ADAPTERS

Code Thread Size	Dimensions in (mm)		
	Welded	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)	0.76 (19.2)
M10 x 1.0 (F)	0006	-	0.6 (15.2)
1/4”-18NPT (F)	0009	-	0.76 (19.2)

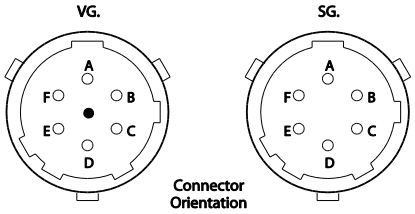
Thread Size	Dimensions in (mm)		
	Screwed	A	B
G1/4A (BSP) (M)	0022	0.46 (11.7)	0.70 (17.8)
M14 x 1.5 (M)	0023	0.40 (10.2)	0.62 (15.8)
7/16”-20UNF-2A (M)	0024	0.56 (14.3)	0.78 (19.8)
1/4”-18NPT (M)	0025	0.55 (14.0)	0.80(20.4)
M10 x 1.0 (M)	0026	-	0.60 (15.2)

Range	Diameter C in (mm)
10 psi (0.7 bar)	1.143 (29.05)
15 psi (1.0 bar)	1.043 (26.50)
20psi (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[2]
Red[1]	Pin A[1]	Excitation (+)
White	Pin D	Excitation (-)[3]
Yellow	Pin B	Output (+)
Blue[1,3]	Pic C[1,2]	Output (-)[3]
Violet	Pin E	80% shunt calibration[4]
Grey	Pin F	

Connector Orientation

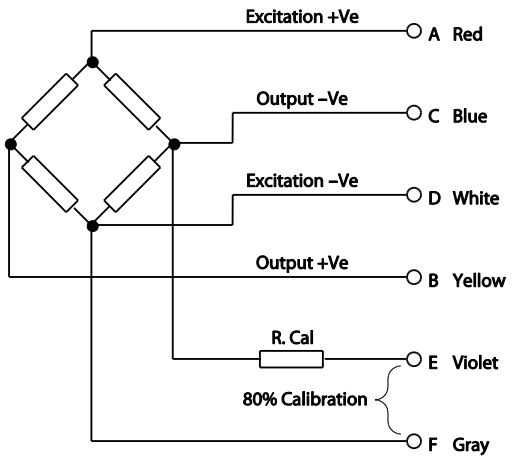


Note: Screen is connected to the case for CE marked units.
Screen is not connected to the case for optional IS units (P980).
IS certification revokes CE certification.

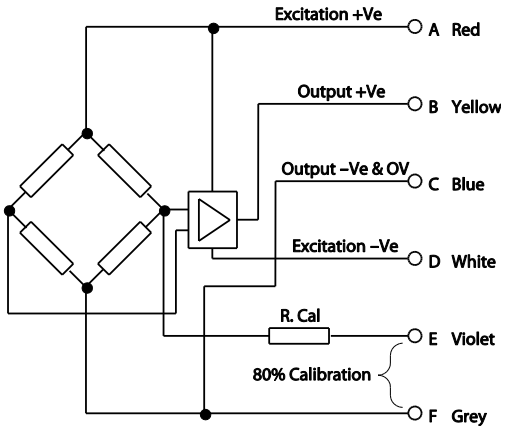
1. 2-wire transmitter connections
2. Vented gauge units must breathe through the receptacle (mating connector must have a vent hole)
3. 0 Volt P990 series
4. Connected internally for P940, P950, P960 Series (3-wire)
5. Shunt calibration not fitted to P980 Series

WIRING

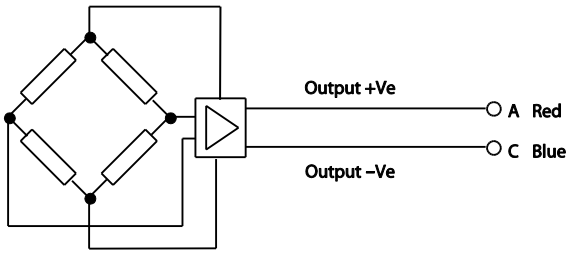
P901/9, P910/9



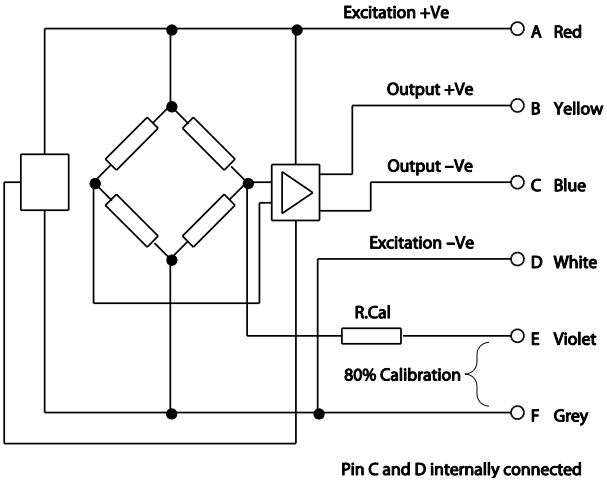
P991/9



P981/9



P941/9, P951/9, P961/9, P971/9



ORDERING INFORMATION

P9 6 1 - 1 0 0 5 - 100 PS G 05

Output		
Code	**Output Signal**	**Supply Voltage**
0	0 – 20mV 1kΩ bridge	10V
1	0 – 20mV 350Ω bridge	10V
4	0 to 5V	10V
5	0 to 2.5V	11 – 18V
6	0 to 5V	18 – 32V
7	0 to 10V	15 – 36V
8	4 to 20 mA	10 – 36V
9	0 to 5V	±15V

Cable Length	
Code	XX
Unit	Meter

Specify 2-digit length (max. 20 meters)
Add zero in front of Single Digit Lengths

Pressure Type	
A	Absolute
S	Sealed Gauge
V	Vented Gauge

Pressure Unit	
BA	Bar
PS	psi

Connector Outlet	
Code	**Connection Type**
1	High range - Cable
2	Medium range – Cable
3	High range – Connector
4	Medium range – Connector
6	High range – Cable (CR)
7	Medium Range – Cable (CR)
8	High Range – Connector (CR)
9	Medium range – Connector (CR)

(CR): Corrosion Resistant Wetted

High		DIN
psi	bar	bar
75		4
100	5	6
150	7	10
220	10	16
250	15	25
350	25	40
500	35	60
750	50	100
1000	70	160
1500	150	250
2200	200	400
3500	250	600
5000	350	
7500	500	
10000	700	

Pressure Range Type	
Code	Description
0	Standard
1	Non-standard
G	Oxygen Degreasing

Code 1 is only available on select, existing parts

Certification	
Code	Certification
0	Standard CE
1	Custom Special
9	Intrinsically safe (P98X only)

Codes 1 & 9 are only available on select, existing parts

Pressure Port Type	
Code	**Port**
1	1/4-19 BSPP Female
2	1/4-19 BSPP
3	M14 x 1.5mm Male
4	7/16-20 UNF 2A Male
5	1/4-18 NPT
6	M10 x 1.0 mm Arsero Emeto Female
9	1/4-18 NPT Female

Connection	
Code	Adapter Type
0	Welded
2	Screwed in

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. Otherwise, manufacturer's warranty is voided

NORTH AMERICA

Measurement Specialties, Inc.,
a TE Connectivity Company
Phone: 800-522-6752
Email: customercare.frmt@te.com

EUROPE

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