



MEAS DIGITALLY COMPENSATED ALL-MEDIA PRESSURE TRANSDUCER

9400 NetScanner System

Series 9400 are highly accurate, digitally compensated pressure transducers designed specifically for use with PSI's 9022 All-Media Intelligent Pressure Scanners in applications requiring compatibility with liquid and high pressure media. The 9400 utilizes a highly accurate pressure sensor assembly specifically designed for hostile fluids and gases. The assembly is integrated with supporting electronics in a durable waterproof housing constructed of 316 SS. Standard pressure ranges are available from 0-5 to 0-10,000 psi in gage, absolute and differential reference pressure formats.

Series 9400 transducers achieve high accuracy and thermal stability through the use of digital compensation technology to correct zero, span, and linearity errors over the operating pressure and temperature range. Each digitally compensated transducer contains an integral serial EEPROM storing factory generated calibration data. This data is uploaded into the Model 9022 Intelligent Pressure Scanners upon power-up and used to compensate for the inherent transducer errors during use. Static accuracy of up to $\pm 0.05\%$ FS with thermal stability up to $\pm 0.005\%/^{\circ}\text{C}$ are achieved using this technique. The Model 9022 scanners support output pressure measurements from the 9400 transducers in engineering units over an Ethernet interface using TCP or UDP protocols.

The Series 9400 All-Media Pressure Transducer is one component of the NetScanner System. Multiple NetScanner components measuring a variety of parameters and sharing the same command set can be networked to form a distributed intelligent data acquisition system.

Features

- ◆ Embedded EEPROM-based Calibration Data
- ◆ Digital Sensor Compensation
 - ↳ Up to $\pm 0.05\%$ FS Static Accuracy
 - ↳ Up to $\pm 0.005\%/^{\circ}\text{C}$ Thermal Stability
- ◆ Pressure ranges: 0-5 psi to 0-10000 psi
- ◆ Welded 316 SS Construction

Applications

- ◆ Turbomachinery Test Stands
- ◆ Portable Test Systems
- ◆ Process Monitoring
- ◆ Hydraulic/Pneumatic Systems

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Specifications

*After 1 hour warmup @ 25°C with atmospheric reference pressure unless otherwise stated / FS = Full Scale

PARAMETER	9400	9401	9402	UNITS	COMMENTS
PNEUMATICS					
Pressure Reference	Gage ¹	Absolute	Differential		
Pressure Ranges	5	15	5		
	10	30	10		
	15	50	15		
	50	100	50		
	100	250	100		
	250	500	250		
	500	750		psi	
	750	1000			
	1000	1500			
	1500	3000			
	3000	5000			
5000	10000				
Proof Pressure ²		3.0		x FS	range <= 100 psi
		1.5			range > 100 psi
Burst Pressure		5x		x FS	range = 5-500 psi
		3x			range > 500-3000 psi
		2x			range > 3000 psi
STATIC PERFORMANCE					
Static Accuracy ³		±0.05		% FS	range < 750 psi
		±0.25		% FS	range > 750 psi to <=3000 psi
		±0.50		% FS	range > 3000 psi
Anti-Aliasing Filter		±0.005		% FS/°C	digital compensation ⁶
		±0.05		% FS/°C	analog compensation ⁷
Thermal Hysteresis		±0.2		% FS	after cycling over full temp range
Max Line Pressure	N/A		1000	psi	
Line Pressure Effect ⁴	N/A		±0.01	% FS/psi	
ENVIRONMENTAL					
Wetted Materials	316 SS, Viton, BUNA-N, EPR-E515				
Compensated Temp Range		0 to 50		°C	standard
		-30 to 40			optional
Operating Temp Range		-30 to 100		°C	
ELECTRICAL					
Excitation		12-36		VDC	
Power Supply Rejection		±.001		%/VDC	
Output		0-4.9		VDC	
	Vo			VDC	
	Vt		3.0 – 4.0		

Notes:

1. Pressure ranges > 750 psi are "sealed" gage rather than "vented" gage.
 2. Maximum pressure which can be applied without causing calibration shift.
 3. Static accuracy includes the combined errors due to nonlinearity, hysteresis and non-repeatability following a zero calibration of the sensor.
 4. Includes effects of zero and span relative to 25°C.
 5. Primarily zero offset.
 6. For digital compensation type transducers, the on-board EEPROM contains full operating range temperature and nonlinearity correction coefficients.
 7. For analog compensation type transducers, the on-board EEPROM contains room temperature (approx. 25°C) nonlinearity correction coefficients.
- Specifications subject to change without notice.

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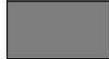
PARAMETER	9400	9401	9402	UNITS	COMMENTS
ELECTRICAL (CONT'D)					
Output Impedance		1000		Ohm	max
	Vo			Ohm	max
	Vt			M Ohm	@ 50 VDC
Insulation Resistance		50			
PHYSICAL/ENVIRONMENTAL					
Acceleration		±0.02		% FS/g	range <= 15 psi
		±0.01		% FS/g	range >= 30 psi
Vibration		±0.05		% FS/g	30 g peak 10 Hz – 2 kHz
Weight	6		17	oz	
Pressure Connection	1/4" MNPT				
	AN4 G1/4(BSPP) M14		7/16-20, SAE o-ring Boss		
Electrical Connection		PTIH-12-8P Bendix			
	Standard Optional	PVC Jacketed Cable			

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9400/9401

Additional parts for DD (Seal material) option



Denotes an invalid configuration.

		<= 750 psi			>750 psi & <=3000 psi			>3000 psi		
		DD=00	DD=03	DD=04	DD=00	DD=03	DD=04	DD=00	DD=03	DD=04
		Viton	EPR E515	Buna	Viton	EPR E515	Buna	Viton	EPR E515	Buna
BB=01	1/4" MNPT	None	61-15-614070	61-12-614070	None	61-15-614070 64-15-349072	61-12-614070 61-12-0072	None		
BB=02	AN4	None	61-15-614070	61-12-614070	None	61-15-614070 64-15-349072	61-12-614070 61-12-0072	None		
BB=03	G 1/4 (male BSPP)	None			None			None		
BB=05	M14 x 1.5 male	None	61-15-614070	61-12-614070	None	61-15-614070 64-15-349072	61-12-614070 61-12-0072	None		

Additional parts for E (Temp Cal) option

		< 1000psi			>= 1000 psi & <=3000 psi			>3000 psi		
		DD=00	DD=03	DD=04	DD=00	DD=03	DD=04	DD=00	DD=03	DD=04
		Viton	EPR E515	Buna	Viton	EPR E515	Buna	Viton	EPR E515	Buna
E=0	Digital 0-50C	None	None	None						
E=1	Analog 0-50C				01-31-2701B 01-53-2401	01-31-2701B 01-53-2401	01-31-2701B 01-53-2401	01-31-2701B 01-53-2401		
E=8	Analog -30-40C					01-31-2701B 01-53-2401	01-31-2701B 01-53-2401			
E=9	Digital -30-40C		None	None						

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Ordering Information

Ordering Information:
 PN: **9400-AAAABBCDDEFF**
 PN: **9401-AAAABBCDDEFF**

9400 All-Media Gage Pressure Transducer
 9401 All-Media Absolute Pressure Transducer

AAAA = Pressure Range

0005, 0-5 psi	0100, 0-100 psi	1500, 0-1500 psi
0010, 0-10 psi	0150, 0-150 psi	2000, 0-2000 psi
0015, 0-15 psi	0250, 0-250 psi	3000, 0-3000 psi
0030, 0-30 psi	0500, 0-500 psi	5000, 0-5000 psi
0050, 0-50 psi	0750, 0-750 psi	9999, 0-10000 psi
0075, 0-75 psi	1000, 0-1000 psi	

BB = Pressure Fitting

- 01, 1/4" NPT, Male
- 02 AN4, Male
- 03, BSPP, Male
- 05, M14, Male

C = Electrical Connection

- 2, Bendix PTIH-12-8P Connector
- 4, PVC Cable (for 9021)
- 6, PVC Cable (for 9022)

DD = Wetted Material

- 00, 316 SS / VITON
- 03, 316 SS / E515
- 04, 316 SS / BUNA N

E = Compensated Temp Range

- 0, Digital only (0 to 50°C)
- 1, Analog only (0 to 50 °C)
- 8, Analog only (-30 to 40°C)
- 9, Digital only (-30 to 40°C)

FF = Attached cable length in feet, 2 ft min – 50 ft max (C = 4 or 6 only; if C=2, FF=00)

PN: **9402-AAAA04CDDE** 9402 All-Media Differential Pressure Transducer

AAAA = Pressure Range

0005, 0-5 psi	0050, 0-50 psi
0010, 0-10 psi	0100, 0-100 psi
0015, 0-15 psi	0250, 0-250 psi

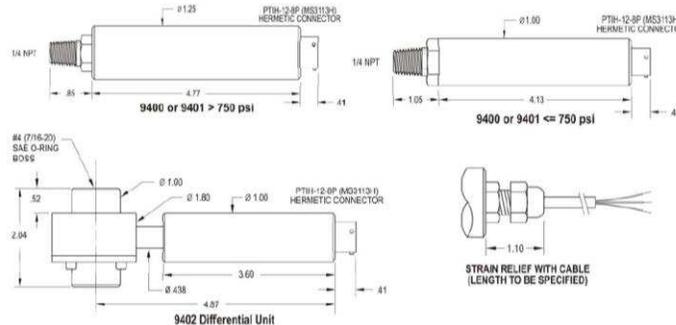
C = Electrical Connection

- 2, PTIH-12-8P Bendix Connector
- 4, PVC Cable (for 9021)
- 6, PVC Cable (for 9022)

E = Compensated Temp Range

- 0, Digital only (0 to 50°C)
- 1, Analog only (0 to 50 °C)
- 8, Analog only (-30 to 40°C)
- 9, Digital only (-30 to 40°C)

Example: 9400-001001200000 9400 All-Media Pressure Transducer, 10 psig, 1/4" NPT, Bendix Connector, 0 to +50°C Digital



NORTH AMERICA

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