PS10,000 Series

Digitally Compensated Pressure Transducer

The PS10,000 pressure transducers combines the strong history of industrial packaging capabilities from Schaevitz® with the latest in silicon sensing technologies.

A unique modular design enables the new PS10,000 series pressure transducers to serve numerous markets. The PS10,000 offers exceptional price/performance and gives OEM accuracy found only in high performance units costing hundreds of dollar more.

At the heart of the PS10,000 transducer is an advanced silicon micromachined piezoresistive sensing element. This element is packaged in a rugged 316L stainless steel media isolated housing, and calibrated to provide a foundation for the PS10,000 finished transducer. The addition of a digital compensation module provides complete signal conditioning, offering 4-wire 0-5 VDC and 0-10 VDC outputs, or a 2-wire 4-20 mA loop output. Superb accuracy is achieved through advanced digital compensation and automated test calibration techniques thus providing a nonlinearity error of typically less than 0.05%F.R.O.(±0.1% F.R.O. low ranges), with an aggressive compensated temperature range of 13°F to 185°F (-25°C to 85°C).

The unique signal conditioner inside each PS10,000 compensates for both non-linearity and thermal error. Every PS10,000 media isolated transducer is subjected to 100% pressure and temperature testing to determine its individual characteristics before burn-in of the digital circuits. To enable a frequency response of 1000 Hz (-3dB), Schaevitz® has designed a unique circuit with a "thru-path" architecture providing high speed while still allowing the PS10,000 to set the zero and span within tolerances of ±0.1%.

Features include a static error band as small as 0.05% FS (Non-linearity, Hysteresis and Nonrepeatability), and pressure ranges from 0-5 to 10,000 psi (0-.35 to 700 Bar). Special pressure ranges and pressure ports are available upon request.

The PS10,000 offers an economical solution to applications where high accuracy is required but not previously affordable. The PS10,000 provides a high degree of interchangeability and easy installation in demanding environments such as process plants, water treatment facilities, hydraulic systems and earth-moving equipment.

Features

- ❑ ***IP65, NEMA 4X***
- ❑ ***5 psi to 10,000 psi pressure range F.S.***
- ❑ ***0.05% typical static error band (0.1% max.)***
- ❑ ***Wide temperature range: 13°F to 185°F (-25°C to 85°C)***
- ❑ ***Rugged stainless steel all welded construction***
- ❑ ***High interchangeability: unit for unit***
- ❑ ***Advanced digital compensation***
- ❑ ***1000 Hz frequency response (-3 dB)***
- ❑ ***NEMA 4X (IP65) media isolated***
- ❑ ***CE certified***

Applications

- ❑ ***Hydraulic and pneumatic controls***
- ❑ ***Process industries***
- ❑ ***Refrigeration***
- ❑ ***Research and test facilities***

PS10,000 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.

CE

PS10,000 Series
Pressure Ranges: 0-5 to 0-10,000 psi
(0-0.35 to 0-700 bari)
Accuracy: ≤± 0.05% F.R.O.

Specifications By Model

Model Numbers	PS10,061/3	PS10,071/3	PS10,081/3
Output @ 25°C (77° F) F.R.O.	5 VDC ±0.1% typ (±0.25% max)	10 VDC ±0.1% typ (±0.25% max)	4 to 20 mA ±0.1% typ (±0.25% max)
Input Voltage (VDC)	10 to 32	13 to 32	10 to 32
Output Impedance (Ohms)	< 10	< 10	1 Meg
Output Current Limit (mA) max	50	50	30
Zero Offset (% F.R.O.)	0 Volts ±0.1% typ (±0.25% max)	0 Volts ±0.1% typ (±0.25% max)	0 Volts ±0.1% typ (±0.25% max)
Combined Thermal Zero & Sensitivity Error (%F.R.O.*)	±0.2% typ, ±0.5% max	±0.2% typ, ±0.5% max	±0.2% typ, ±0.5% max
Weigh gm (oz)			
Cable Version	180 (6.4)	180 (6.4)	180 (6.4)
Connector Version	165 (5.9)	165 (5.9)	165 (5.9)

Typical figures valid for approximately 90% of production (range dependent).
*-25°C to 85°C

Common Specifications (All specifications are at 77°F (25°C) unless otherwise noted)

Pressure Ranges

Absolute (psia)	psi: 0 to 15, 30, 50, 100, 250	bar: 0 to 1, 1.6, 2, 2.5, 4, 6, 7, 10, 15, 16, 25
Vented Gauge (psig)	psi: 0 to 5, 15, 30, 50, 100, 250	bar: 0 to 0.35, 1, 1.6, 2, 2.5, 4, 6, 7, 10, 15, 16, 25
Sealed Gauge (psis)	psi: 0 to 500,1000, 2500, 5000, 10000	bar: 0 to 0.35, 1, 40, 60, 70, 100, 175, 205, 250, 350, 400, 700

Pressure References ..... Absolute, vented gauge, and sealed gauge (Vented gauge units should only breathe dry, non-corrosive gases, and must breathe through the receptacle – mating connector must have a vent hole)

Pressure Limit ..... 0 to 100 psi (0 to 7 bar) ≥5X the rated pressure
250 to 2,500 psi (17 to 175 bar) ≥3X the rated pressure
5000 to 10,000 psi (350 to 700 bar) ≥1.5X the rated pressure

Burst Pressure ..... 0 to 250 psi (0 to 17 bar) ≥10X the rated pressure
500 to 2,500 psi (35 to 175 bar) ≥4X the rated pressure
5000 to 10,000 psi (350 to 700 bar) ≥2X the rated pressure

Pressure Media ..... Liquids or gases compatible with 316L stainless steel

Static Error Band
Combined Nonlinearity, Hysteresis, and Nonrepeatability .... ±0.05% F.R.O. typical accuracy, ±0.1% F.R.O. maximum

Temperature Ranges

Compensated ..... -13° to 185°F (-25° to 85°C)
Operating ..... -40° to 212°F (-40° to 100°C)
Storage ..... -58° to 212°F (-50° to 100°C)

Humidity ..... 95% R.H., noncondensing on all vented gauge units and 100% R.H. condensing on absolute and sealed gauge units.

Vibration ..... ±20g MIL-STD-810C, Procedure 514.2, Figure 514.2-2, Curve L

Shock ..... 50g, 11 msec half sine shock per mil standard 202F, method 213B, condition A

Insulation Resistance ..... 10 Mohm @ 100 VDC

Long Term Drift ..... <0.1% F.R.O./Year Max

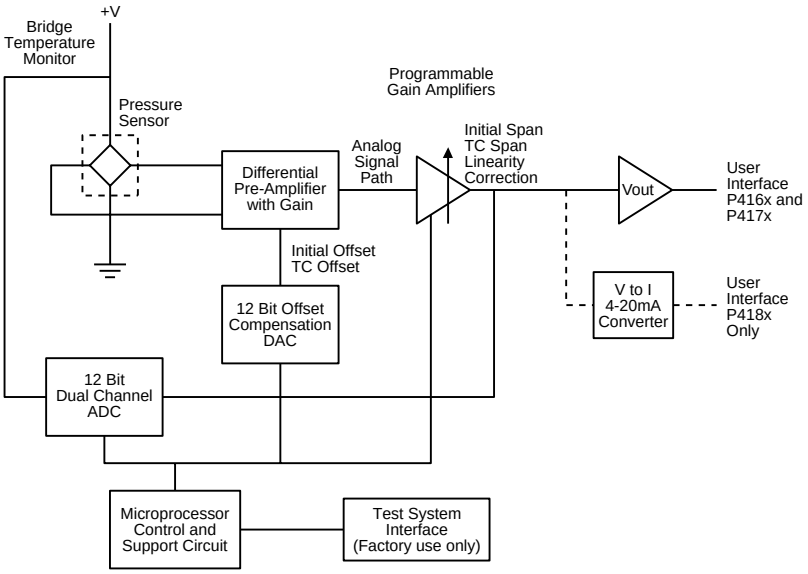
Frequency Response ..... 1000 Hz (-3dB)

EMC ..... Emissions to EN55022 (CISPR 22) Limit B.
Radiated immunity to IEC-801-3 Level 3 10V/m (ENV 50140).
Burst Transients to IEF 801-4 Level 3 (2kV) (EN61000-4-4).
Electrostatic Discharge to IEC 801-2 Level 2 (4kV) (EN61000-1-2, 8kW air).
Conducted RF to Mil Std 461D, CS114 Level 2.

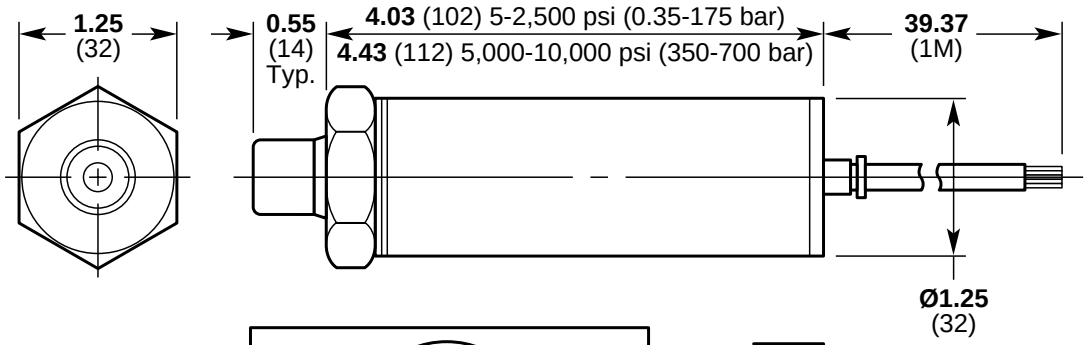
CHAEVITZ SENSORS

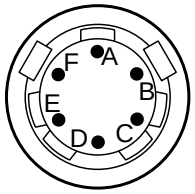
PS10,000 Series

Digitally Compensated Pressure Transducer

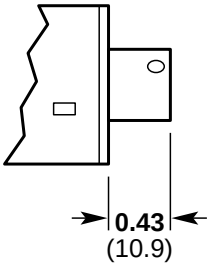


Dimensions in (mm)





Connector Orientation
6 Way Bayonet
Hermetically Sealed
MIL-C 26482 Shell Size 10



Cable Version: 39 inches (1 meter), 6 core, 28 gauge polyurethane with integral vent tube.

Vented Gauge units must breathe dry, non-corrosive gases. Connector version is vented through the removed pin "F". Cable versions are vented through a vent tube inside the cable sleeve.

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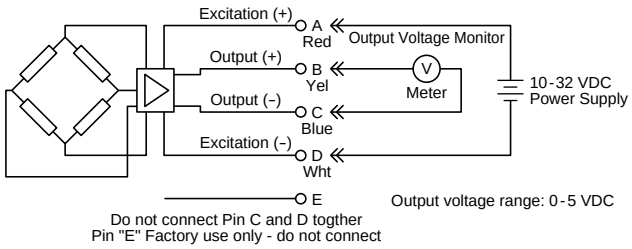
PS10,000 Series
Pressure Ranges: 0-5 to 0-10,000 psi
(0-0.35 to 0-700 bar)
Accuracy: ≤± 0.05% F.R.O.

Wiring

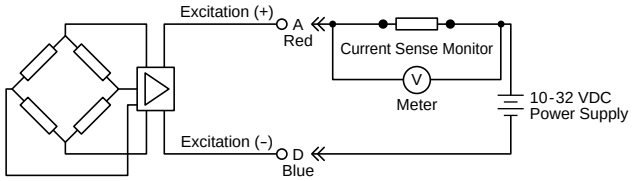
PS10061/3 Voltage Output - 4 wire



Output voltage range: 0-5 VDC

Do not connect Pin C and D togther
Pin "E" Factory use only - do not connect

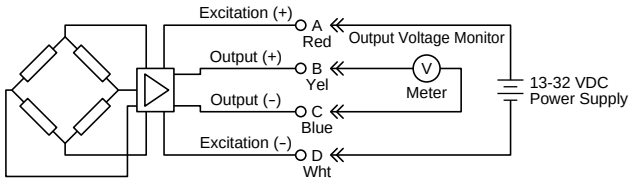
PS10081/3 4-20 mA Output



Output current range: 4-20 mA

Pin "E" Factory use only - do not connect

PS10071/3 Voltage Output - 4 wire



Output voltage range: 0-10 VDC

Pin "E" Factory use only - do not connect

How to Order

Specify by input/output, cable/connector, pressure port, pressure range, and unit of measure.

Cable/Connector Model Number Code: PS10, 0 [ ][ ] — 000 [ ] — [ ][ ][ ]

Input/Output
6 – 0 to 5 V output (10-32 VDC supply)
7– 0 to 10 V output (13-32 VDC supply)
8 – 4 to 20 mA output (10-32 VDC supply)

Cable/Connector
1 – Cable output
3 – Connector output

Pressure Port
2 – 1/4 in BSP male
4 – 7/16 in 20 UNF male
5 – 1/4 in 18 NPT male

Unit
B: bar
P: psi

Pressure Reference
A: Absolute
S: Sealed gauge
V: Vented gauge

Mating Connectors: PT06A-10-6S (SR)
Sold Separately General Applications (stock item)

Pressure Range
(Enter full scale pressure range without units)
psi 0 to 5; 15; 30; 50; 100; 250; 500; 1000; 2500; 5000; 10,000
bar 0 to 0.35; 1; 1.6; 2; 2.5; 4; 6; 7; 10; 15; 16; 25; 35; 40; 60; 70; 100; 175; 205; 250; 350; 400; 700

Reference Pressures:
- 0 to 5 psi (0.35 bar) available in Vented Gauge only.
- 0 to 15 to 250 psi (1 to 25 bar) available in Absolute and Vented Gauge only.
- 0 to 500 to 10,000 psi (35 to 700 bar) available in Sealed Gauge only.

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