

# Pressure Sensors

170PC Series

## Low Pressure Gage & Differential/Unamplified

### Temperature Compensated Sensors



#### FEATURES

- Miniature package
- Low pressure measurement
- Calibrated Null and Span
- Temperature compensated for Span over 0 to 50°C
- Provides interchangeability

### 176PC SERIES PERFORMANCE CHARACTERISTICS at 10.0 ±0.01 VDC Excitation, 25°C

	Min.	Typ.	Max.	Units
Excitation	---	10	16	VDC
Null Offset	-2	0	+2	mV
Null Shift, 25° to 0°, 25° to 50°C	---	±3.0	---	mV
Sensitivity Shift, 25° to 0°, 25° to 50°C	---	---	±4.0 <sup>1</sup> ±3.5 <sup>2</sup>	%Span %Span
Repeatability & Hysteresis	---	±0.25	---	%Span
Response Time	---	---	1.0	msec
Input Resistance	---	6.3 K	---	ohms
Output Resistance	---	4.0 K	---	ohms
Stability over One Year	---	±0.5	---	%Span
Weight	---	7	---	grams

Key: 1 = 0-7", 0-14" H<sub>2</sub>O only

2 = 0-28" H<sub>2</sub>O only

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40° to +85°C (-40° to +185°F)
Storage Temperature	-55° to +125°C (-67° to +257°F)
Compensated Temperature	0° to +50°C (32° to +122°F)
Shock	MIL-STD-202, Method 213 (150 g, half sine, 11 msec)
Vibration	MIL-STD-202, Method 204 (10 to 2000 Hz at 20 g)
Media	P2 port Wetted materials; polyester housing, epoxy adhesive, silicon, borosilicate glass, and silicon-to-glass bond*
	P1 port Dry gases only

\* Liquid media containing some highly ionic solutions could potentially neutralize the chip-to-glass tube bond.

### 176PC SERIES ORDER GUIDE

Catalog Listing	Pressure Range "H <sub>2</sub> O	Span, mV			Sensitivity mV/"H <sub>2</sub> O Typ.	Overpressure "H <sub>2</sub> O Max.	Linearity, % Span	
		Min.	Typ.	Max.			P2 > P1 Max.	P2 < P1 Max.
176PC07HG2	0-7	26	28	30	4.00	140	±3.00	±1.50
176PC07HD2	0-7	26	28	30	4.00	140	±3.00	±1.50
176PC14HG2	0-14	33	35	37	2.50	140	±3.00	±1.50
176PC14HD2	0-14	33	35	37	2.50	140	±3.00	±1.50
176PC28HG2	0-28	40	42	44	1.50	140	±3.00	±1.50
176PC28HD2	0-28	40	42	44	1.50	140	±3.00	±1.50

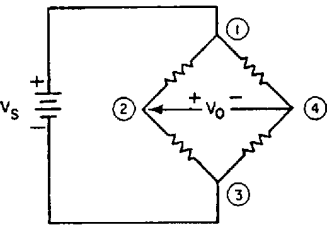
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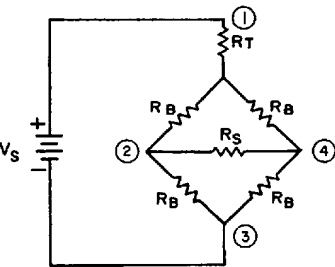
170PC Series

ELECTRICAL CONNECTIONS

Voltage Excitation



INTERNAL CIRCUITRY



NOTES

- 1. Circled numbers refer to sensor termination.
- 2.  $V_O$  changes with pressure difference.
- 3.  $V_O = V_2 - V_4$  (referenced to pin 3).
- 4. Current excitation provides reduced sensitivity variation with temperature.

NOTES

- 1. Circled numbers refer to sensor termination.
- 2.  $V_O = V_2 - V_4$  (referenced to pin 3).
- 3.  $R_B$  = Strain gage resistors ( $\sim 4.8\text{ k}\Omega$ ).
- 4.  $R_T$  = Sensitivity temperature compensation resistor.
- 5.  $R_S$  = Sensitivity calibration resistor.

When a positive pressure is applied to port P2, the differential voltage  $V_2 - V_4$  (voltage at pin 2, with respect to ground, increases and voltage at pin 4 decreases) increases linearly with respect to the input pressure. When a vacuum pressure is pulled at port P2 (or positive pressure applied to port P1) the voltage  $V_2 - V_4$  decreases linearly with respect to the input pressure.

Unamplified

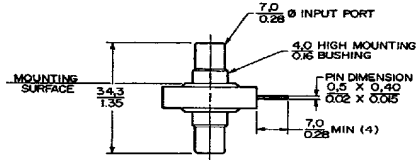
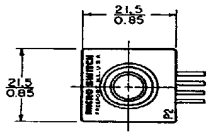
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### MOUNTING DIMENSIONS (For reference only)

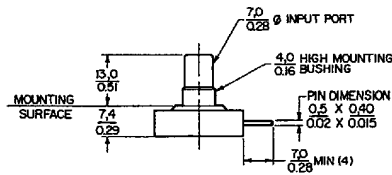
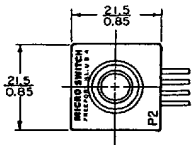
#### Differential Types



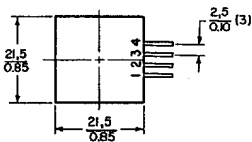
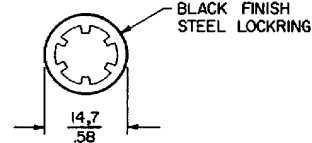
#### Terminals

- 1 - Vs (+)
- 2 - Output A
- 3 - Ground (-)
- 4 - Output B

#### Gage Types



#### Mounting Hardware - PC-10182



#### 170PC CONSTRUCTION

