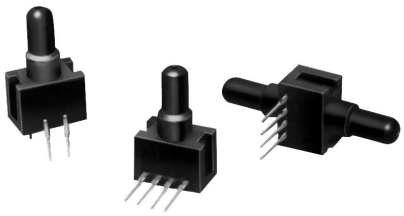
Pressure Sensors

24PC Series

Gage and Differential/Unamplified-Noncompensated

Basic Sensors



FEATURES

- Miniature package
- Variety of gage pressure port configurations - easily and quickly modified for your special needs
- Operable after exposure to frozen conditions
- Ideal for wet/wet differential applications
- Choice of termination for gage sensors
- 2 mA constant current excitation significantly reduces sensitivity shift over temperature*
- Can be used to measure vacuum or positive pressure

Unamplified

24PC SERIES PERFORMANCE CHARACTERISTICS at 10.0 ±0.01 VDC Excitation, 25°C

	Min.	Typ.	Max.	Units
Excitation	---	10	12	VDC
Null Offset	−30	0	+30	mV
Null Shift, 25° to 0°, 25° to 50°C	---	±2.0	---	mV
Linearity, P2 > P1, BFSL	---	±0.25	±1.0	%Span
Span Shift, 25° to 0°, 25° to 50°C	---	±5.0*	---	%Span
Repeatability & Hysteresis	---	±0.15	---	%Span
Response Time	---	---	1.0	msec
Input Resistance	4.0 K	5.0 K	6.0 K	ohms
Output Resistance	4.0 K	5.0 K	6.0 K	ohms
Stability over One Year	---	±0.5	---	%Span
Weight	---	2	---	grams

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	−40° to +85°C (−40° to +185°F)
Storage Temperature	−55° to +100°C (−67° to +212°F)
Shock	Qualification tested to 150 g
Vibration	Qualification tested to 0 to 2 kHz, 20 g sine
Media (P1 & P2)	Limited only to those media which will not attack polyetherimide, silicon, fluorosilicone, silicone, EPDM and neoprene seals.

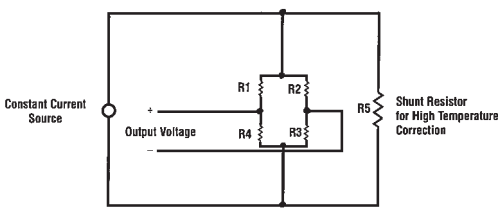
24PC SERIES ORDER GUIDE

Catalog Listing	Pressure Range psi	Span, mV			Sensitivity mV/psi Typ.	Overpressure psi Max.
		Min.	Typ.	Max.		
24PCE Type	0.5	24	35	46	70	20
24PCA Type	1.0	30	45	60	45	20
24PCB Type	5.0	85	115	145	23	20
24PCC Type	15	165	225	285	15	45
24PCD Type	30	240	330	420	11	60
24PCF Type	100	156	225	294	2.25	200
24PCG Type	250	145	212	280	0.85	500

*Non-compensated pressure sensors, excited by constant current instead of voltage, exhibit temperature compensation of Span. Application Note #1 briefly discusses current excitation.

Constant current excitation has an additional benefit of temperature measurement. When driven by a constant current source, a silicon pressure sensor's terminal voltage will rise with increased temperature. The rise in voltage not only compensates the Span, but is also an indication of die temperature.

Constant Current Excitation Schematic



Pressure Sensors

24PC Series

Gage and Differential/Unamplified-Noncompensated

SENSOR SELECTION GUIDE

2 Product Family	4 Circuit Type	PC Pressure Transducer	A Pressure Range	F* Type of Seal	A Type of Port	2 Termination Style	G Pressure Measurement
2 20PC family	**4** Noncompensated		**A** 1 psi **B** 5 psi **C** 15 psi **D** 30 psi **E** 0.5 psi **F** 100 psi **G** 250 psi	**E** EPDM **F** Fluorosilicone **N** Neoprene **S** Silicone	**A** Straight **B** Barbed **C** Luer **D** Modular **H** M5 Thread **I** 90° Port **J** Needle **K** Reverse 98 Port **L** 1/4 - 28 UNF w/Cable Lock **M** 1/4 - 28 UNF w/o Cable Lock **S** Manifold	**1** 1 x 4 (.400″) **2** 2 x 2 **6** 1 x 4 (.600″)	**G** Gage **D** Differential

Example: 24PCAFA2G
Standard, non-compensated 1 psi sensor with fluorosilicone seal, straight port, 2 x 2 terminals, and Gage pressure measurement.
*Other media seal materials may be available.

See Accessory Guide, page 27.

Not all combinations are established. Contact 800 number before final design.

ACCESSORIES SELECTION GUIDE

Catalog Listing	Description	Drawing
PC-10182	Steel lockring (included with Port Style A, 1 x 4 terminals only) 22, 24, 26PC only	Figure 1
PC-15111	Cable retaining clip for large port Flow-Through sensor only	Figure 4
PC-15110	Single hole plastic bracket	Figure 3
PC-15015	Mounting bracket	Figure 6
PC-15132	Plastic Mounting bracket	Figure 5
20PCWHRC	Flow-Through wire harness and retaining clip	Figure 2
26PCBKT	Mounting bracket for large port Flow-Through sensor only	Figure 7
PC-15202	Mounting bracket for Luer Port	Figure 8
PC-15204	Mounting bracket for Straight Port	Figure 9

Figure 1 PC-10182
Steel Lockring

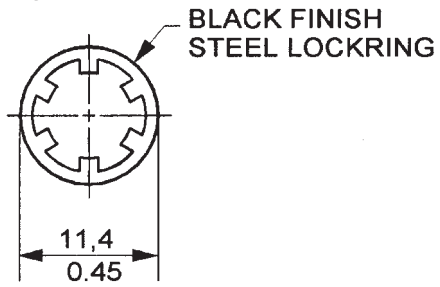


Figure 2 20PCWHRC
Wire Harness and Retaining Clip

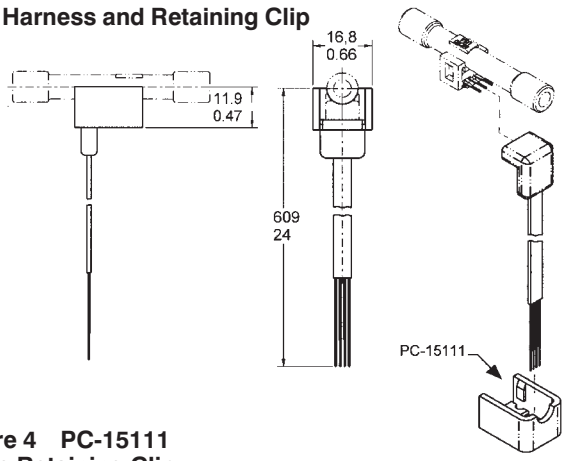


Figure 3 PC-15110
Single Hole Plastic Bracket

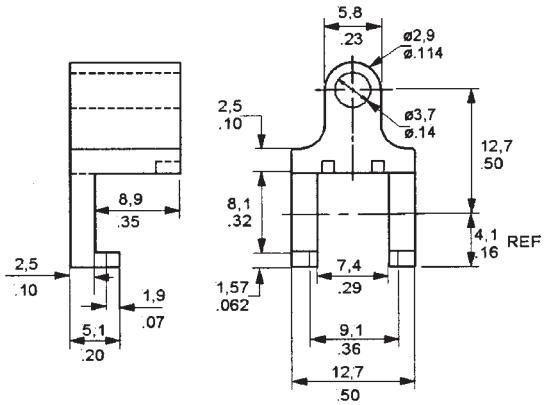


Figure 4 PC-15111
Cable Retaining Clip

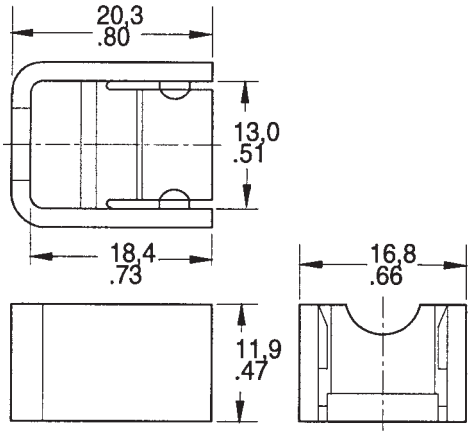


Figure 5 PC-15132
Plastic Mounting Bracket

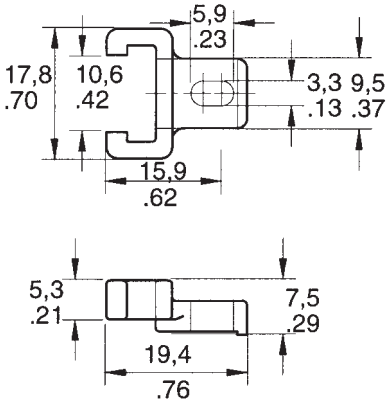
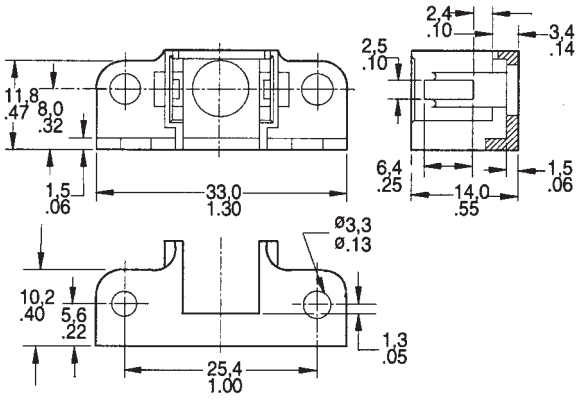


Figure 6 PC-15015
Mounting Bracket



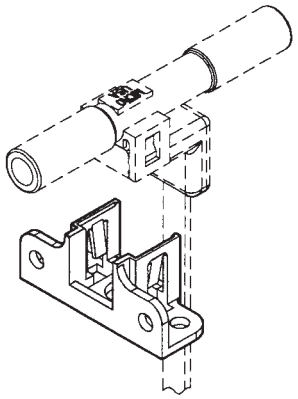
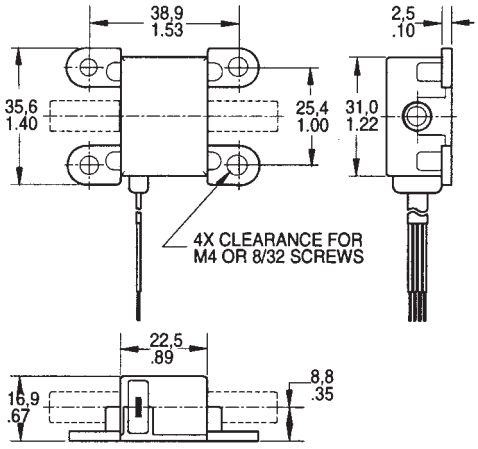


Figure 7 26PCBKT
For use with N, P Large Ports



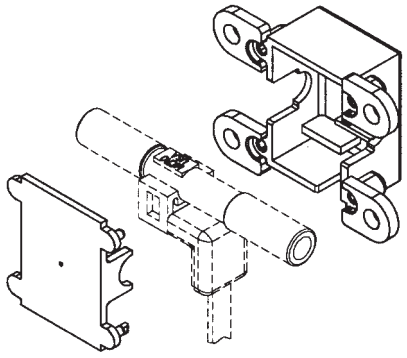


Figure 8 PC-15202
For use with C Luer Port

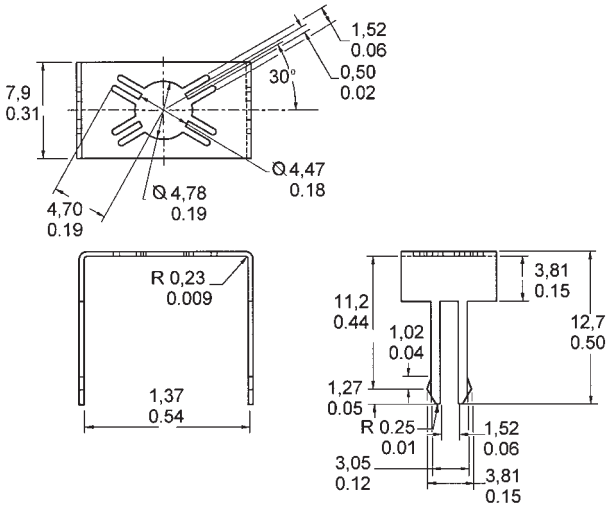
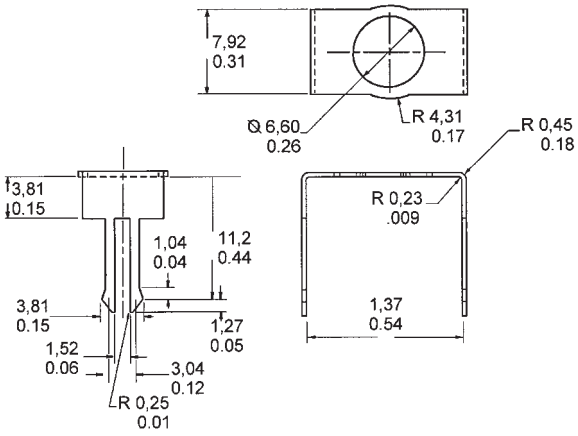


Figure 9 PC-15204
For use with A Straight Port

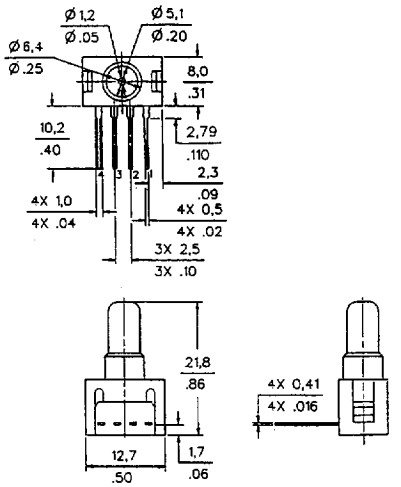


Note: PC-15202 and PC-15204 are Printed Circuit Board mountable and solderable; designed to be used in a .063 thick PC Board with a recommended mounting hole size of .125 ±.005 in.

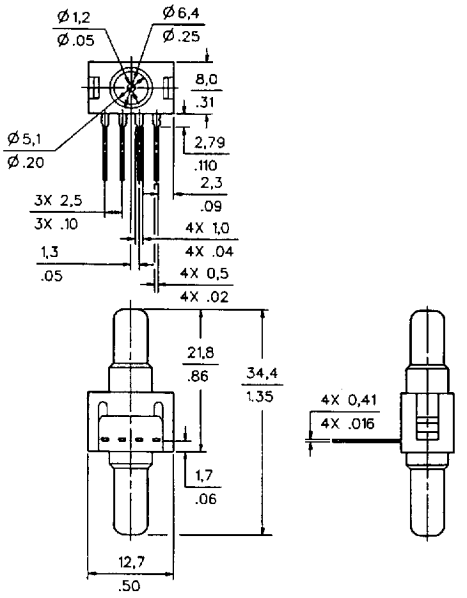
MOUNTING DIMENSIONS (for reference only)

GAGE SENSOR
Pressure is applied to port P2.
Port P1 vents to ambient pressure.

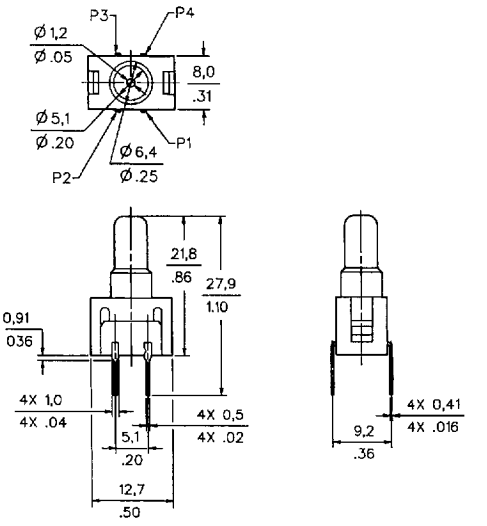
"1 x 4" Termination (Style 1), Port Style A, Straight
Pin 1 is notched, and is shown at the right of the package.
Pin 2 is next to pin 1, etc.



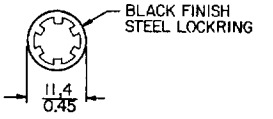
DIFFERENTIAL SENSOR
Straight Port, 1 x 4 termination (Style 2) ONLY
Port P1 is near terminals.



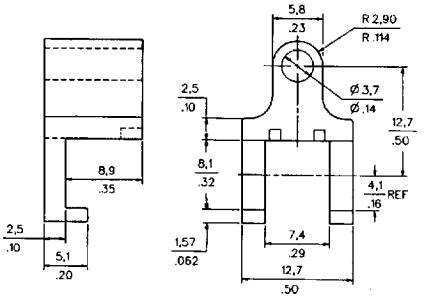
"2 x 2" Termination (Style 2), Port Style A, Straight
Pin 1 is notched, and is shown at lower right corner.
Pins 2, 3 and 4 are clockwise.



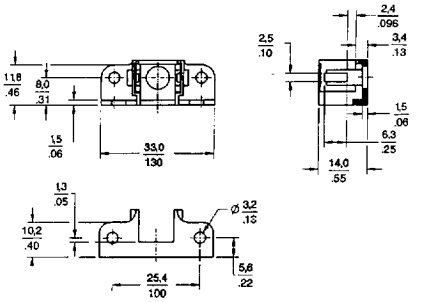
ACCESSORIES
Lockring (included with A port)
PC10182



Single hole Plastic Bracket (purchase separately)
PC10949

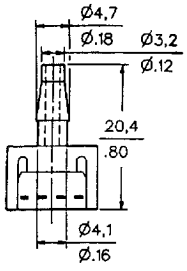


Dual Port Plastic Bracket (purchase separately)
PC15015

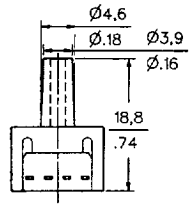


OTHER GAGE SENSOR PORT STYLES
(2 x 2 or 1 x 4 Termination)

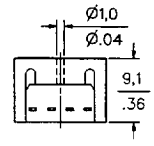
B Barbed



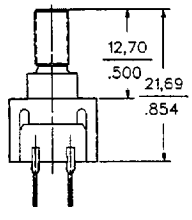
C Luer



D Modular



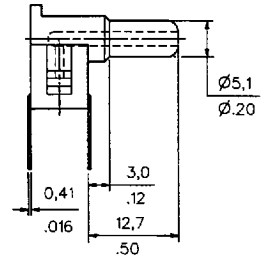
H M5 Thread



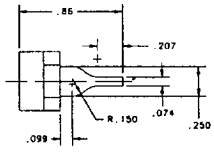
O-Ring
Size 007
O-Ring Counterbore

.040" deep ±.005 × .30 ±.003"

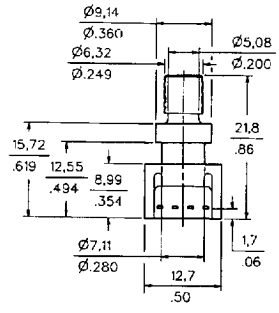
I 90°



J Needle



M ¼–28 UNF Thread



O-Ring
Size 009
O-Ring Counterbore

.040" deep ±.002 × .360" ±.003"

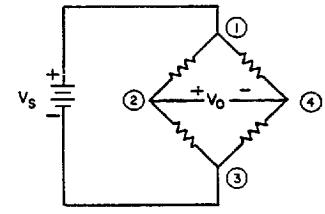
20PC SERIES CIRCUIT - NOTES

1. Circled numbers refer to Sensor Terminals (interface pins).
2. V_0 increases with pressure change.
3. $V_0 = V_2 - V_4$
4. Pin 1 designated with a notch.

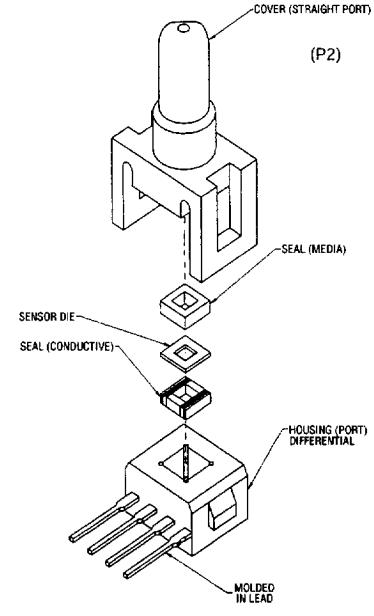
Pin Designation

Pin 1	V_S (+)
Pin 2	Output (+)
Pin 3	Ground (–)
Pin 4	Output (–)

EXCITATION



20PC Construction



Unamplified