# Pressure Sensors

## High Pressure Gage, Vacuum Gage/Amplified





**FEATURES**
- Internal O-Ring seals for contamination resistance
- Screw-in or flat-pack mounting
- Rugged aluminum housing

**240PC SERIES PERFORMANCE CHARACTERISTICS at 8.0 ±0.01 VDC Excitation, 25°C**

| | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Excitation | 7.00 | 8.00 | 16.0 | VDC |
| Supply Current | --- | 8.00 | 20.0 | mA |
| Current Sourcing Output | --- | --- | 10 | mA |
| Null Offset (241/242PC)* | 0.95 | 1.00 | 1.05 | V |
| Null Offset (243PC)** | 3.45 | 3.50 | 3.55 | V |
| Output at Full Pressure** | 5.80 | 6.00 | 6.20 | V |
| Span (241/242PC) | 4.80 | 5.00 | 5.20 | V |
| Span (243PC) | --- | ±2.5 | --- | V |
| Ratiometricity Error<br>7 to 8 V or 8 to 9 V<br>9 to 12 V | <br>---<br>--- | <br>±0.50<br>±2.00 | <br>---<br>--- | <br>%Span |
| Stability over One Year | --- | ±0.50 | --- | %Span |
| Response Time | --- | --- | 1.00 | msec |
| Weight | --- | 85 | --- | grams |
| Short Circuit Protection | Output may be shorted indefinitely to ground | | | |
| Output Ripple | None, DC device | | | |
| Ground Reference | Supply and output are common | | | |

*Positive (or negative) pressure measurement
**Positive and negative pressure measurement

**ENVIRONMENTAL SPECIFICATIONS**

| | | |
|---|---|---|
| Operating Temperature | −40° to +85°C (−40° to +185°F) | |
| Storage Temperature | −40° to +85°C (−40° to +185°F) | |
| Compensated Temperature | −18° to +63°C (0° to +145°F) | |
| Shock | MIL-STD-202, Method 213 (50 g, half sine, 6 msec) | |
| Vibration | MIL-STD-202, Method 204 (10 to 2000 Hz at 10 g) | |
| Media | P2 port | Wetted materials; die-cast aluminum housing, O-ring seal, silicon, borosilicate glass, and silicon-to-glass bond* |

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

# High Pressure Gage, Vacuum Gage/Amplified

### 241/242PC SERIES ORDER GUIDE, GAGE AND VACUUM GAGE, Buna-N O-Ring Port Seal

| Catalog Listing | Pressure Range psi | Null & Sensitivity Shift (%Span) | | Sensitivity V/psi | Overpressure psi Max. | Linearity, %Span B.F.S.L., Max. | Repeatability & Hysteresis %Span Typ. |
|---|---|---|---|---|---|---|---|
| | | 25 to −18° 25 to +63°C Max. | 25 to −40° 25 to 85°C Typ. | | | | |
| 241PC15M* | 0-−15 | ±1.0 | ±2.0 | 0.330 | 45 | ±1.50 | ±0.25 |
| 242PC15M* | 0-15 | ±1.0 | ±2.0 | 0.330 | 45 | ±1.50 | ±0.25 |
| 242PC30M* | 0-30 | ±1.0 | ±2.0 | 0.167 | 60 | ±1.50 | ±0.25 |
| **242PC60G** | 0-60 | ±1.5 | ±2.0 | 0.083 | 120 | ±0.50 | ±0.25 |
| **242PC100G** | 0-100 | ±1.0 | ±2.0 | 0.050 | 200 | ±0.50 | ±0.25 |
| **242PC150G** | 0-150 | ±1.5 | ±3.0 | 0.033 | 300 | ±0.50 | ±0.25 |
| **242PC250G** | 0-250 | ±1.0 | ±2.0 | 0.020 | 500 | ±0.50 | ±0.25 |

### 242PC SERIES ORDER GUIDE, GAGE, Ethylene propylene O-Ring Seal

| Catalog Listing | Pressure Range psi | Null & Sensitivity Shift (%Span) | | Sensitivity V/psi | Overpressure psi Max. | Linearity, %Span B.F.S.L., Max. | Repeatability & Hysteresis %Span Typ. |
|---|---|---|---|---|---|---|---|
| | | 25 to −18° 25 to +63°C Max. | 25 to −40° 25 to 85°C Typ. | | | | |
| 242PC60GS | 0-60 | ±1.5 | ±2.0 | 0.083 | 120 | ±0.50 | ±0.25 |
| 242PC100GS | 0-100 | ±1.0 | ±2.0 | 0.050 | 200 | ±0.50 | ±0.25 |
| 242PC150GS | 0-150 | ±1.5 | ±3.0 | 0.033 | 300 | ±0.50 | ±0.25 |
| 242PC250GS | 0-250 | ±1.0 | ±2.0 | 0.020 | 500 | ±0.50 | ±0.25 |

### 243PC SERIES ORDER GUIDE, VACUUM GAGE, Buna-N Port Seal

| Catalog Listing | Pressure Range psi | Null & Sensitivity Shift (%Span) | | Sensitivity V/psi | Overpressure psi Max. | Linearity, BFSL | | Repeatability & Hysteresis %Span Typ. |
|---|---|---|---|---|---|---|---|---|
| | | 25 to −18° 25 to +63°C Max. | 25 to −40° 25 to 85°C Typ. | | | P2 > P1 Max. | P2 < P1 Max. | |
| **243PC15M*** | ±15 | ±1 | ±2.0 | 0.167 | 50 | ±1.50 | ±0.75 | ±0.25 |

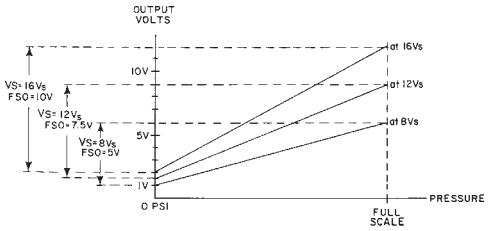
*Adhesive between thermoplastic and aluminum instead of O-ring seal.

### PORT SEAL O-RING

| Material | Resistant To: |
|---|---|
| Buna-N (general use) | Petroleum products, freon 12 and others |
| Ethylene propylene | Phosphate esters and others |

# High Pressure Gage, Vacuum Gage/Amplified

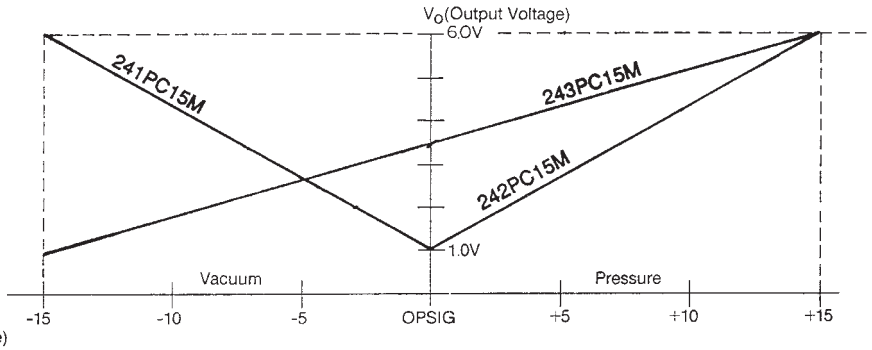
**RATIOMETRICITY**




Ratiometricity refers to the output voltage being directly proportional to supply voltage. 240PC sensors in this catalog are calibrated at 8 VDC supply voltage to provide a 1-6 volt (5 V Span) output swing. For example, if supply increases by 50% to 12 VDC, the output voltage increased by 50% to 1.5-9 volts (7.5 V Span).

NOTE
The output is not perfectly ratiometric. See Accuracy specifications for the degree of error.

**SCALING OF 240PC SERIES WITH 8V EXCITATION**




| | | |
|---|---|---|
| 242PC15M | Gage | $V_o$ = 1 V at 0 psig & 6 V at 15 psig |
| 241PC15M | Vacuum Gage | $V_o$ = 1 V at 0 psig & 6 V at −15 psig |
| 243PC15M | Gage | $V_o$ = 1 V at −15 psig & 6 V at 15 psig |

NOTE: 241PC sensors are scaled for greater pressure on the P1 side of the chip. 242PC sensors are scaled for greater pressure on the P2 side of the chip.
Other scalings available upon request.

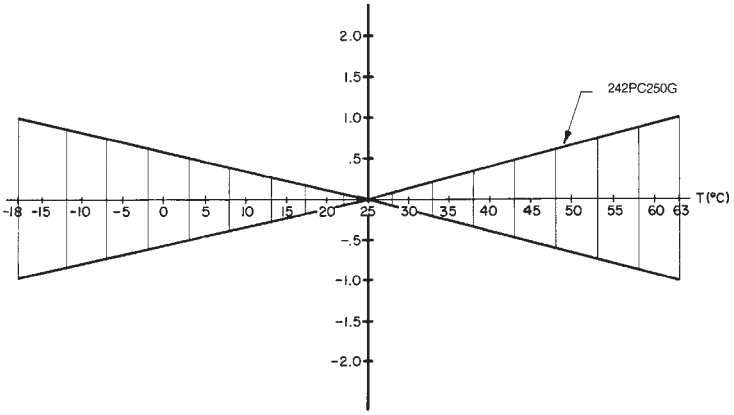
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### NULL AND SENSITIVITY TEMPERATURE SHIFT

Amplified pressure sensors are 100% tested to ensure that the maximum null and sensitivity temperature shift does not exceed the specification. The diagram illustrates how null and sensitivity shift relates to temperature. Note that the maximum shift occurs at temperature extremes. Therefore, if a sensor is not exposed to the entire temperature range, the maximum null and sensitivity shift will actually be less than the value specified.

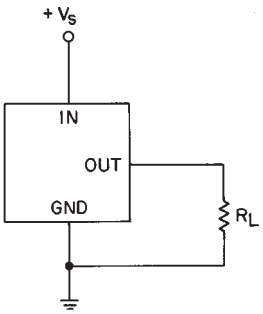
This diagram indicates the temperature shift pertaining to a few listings. Maximum null and sensitivity shift varies from listing to listing.

Null and Sensitivity Shift (% Span)




### ELECTRICAL CONNECTIONS

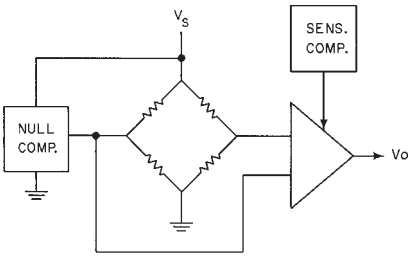
**Voltage Excitation**



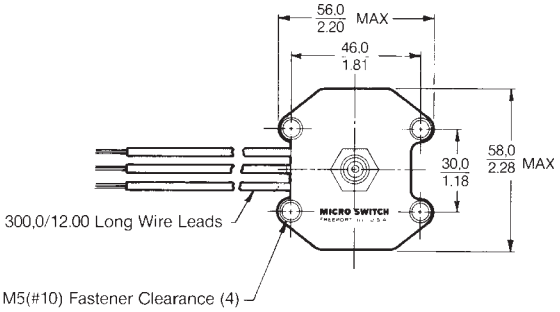

### NOTES

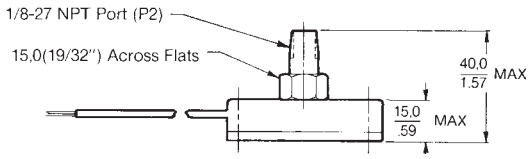
1. Terminals are labeled on the sensor.
2. Input and output share a common ground.
3. $R_L$ must be greater than or equal to 3000 ohms.

### INTERNAL CIRCUITRY




### MOUNTING DIMENSIONS (For reference only)




Leadwires
1 - Red, Vs
2 - Black, Ground (–)
3 - Green, Output