

# Pressure Sensors

140PC Series

## Absolute, Differential, Gage, Vacuum Gage/Amplified

### 140PC SERIES ORDER GUIDE, VACUUM GAGE TYPE

Catalog Listing	Pressure Range psi	Shift Null, Sensitivity, Combined**				Sensitivity V/psi	Overpressure psi Max.	Linearity, B.F.S.L.		Repeatability & Hysteresis %Span Typ.
		25 to 5° 25 to 45°C		25 to -18° 25 to +63°C	25 to -40° 25 to 85°C			P2 > P1	P2 < P1	
		%Span								
		Typ.	Max.	Max.	Max.			Max.	Max.	
141PC01G	0--1	---	±1.50	---	---	5.000	20	---	±0.75	±0.30
141PC05G	0--5	±0.50	---	±1.00	±2.00	1.000	20	---	±0.75	±0.25
141PC15G	0--15	±0.50	---	±1.00	±2.00	0.333	45	---	±0.40	±0.15

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		25 to 5° 25 to 45°C		25 to -18° 25 to +63°C	25 to -40° 25 to 85°C			P2 > P1	P2 < P1	
		%Span								
		Typ.	Max.	Max.	Max.			Max.	Max.	
142PC01G	0-1	---	±1.50	---	---	5.000	20	±0.75	---	±0.30
142PC02G	0-2	---	±1.50	---	---	2.500	20	±0.75	---	±0.30
142PC05G	0-5	±0.50	---	±1.00	±2.00	1.000	20	±1.50	---	±0.25
142PC15G	0-15	±0.50	---	±1.00	±2.00	0.333	45	±0.75	---	±0.15
142PC30G	0-30	±0.50	---	±1.00	±2.00	0.167	60	±0.75	---	±0.15
143PC03G	±2.5	---	---	±1.00	±1.50	1.000	20	±0.75	---	±0.25
143PC05G	±5	---	---	±1.00	±1.50	0.500	30	±0.75	---	±0.15
143PC15G	±15	---	---	±1.00	±1.50	0.177	50	±0.75	---	±0.15

### 140PC SERIES ORDER GUIDE, DIFFERENTIAL TYPE

Catalog Listing	Pressure Range psi	Shift Null, Sensitivity, Combined**				Sensitivity V/psi	Overpressure psi Max.	Linearity, B.F.S.L.		Repeatability & Hysteresis %Span Typ.
		25 to 5° 25 to 45°C		25 to -18° 25 to +63°C	25 to -40° 25 to 85°C			P2 > P1	P2 < P1	
		%Span								
		Typ.	Max.	Max.	Max.			Max.	Max.	
142PC01D	0-1	---	±1.50	---	---	5.000	20	±0.75	±0.40	±0.30
142PC02D	0-2	---	±1.50	---	---	2.500	20	±0.75	±0.40	±0.30
142PC05D	0-5	±0.50	---	±1.00	±2.00	1.000	20	±1.50	±0.75	±0.25
142PC15D	0-15	±0.50	---	±1.00	±2.00	0.333	45	±0.75	±0.40	±0.15
142PC30D	0-30	±0.50	---	±1.00	±2.00	0.167	60	±0.75	±0.40	±0.15
143PC03D	±2.5	---	---	±1.00	±1.50	1.000	20	±0.75	±0.40	±0.25
143PC05D	±5	---	---	±1.00	±1.50	0.500	30	±0.75	±0.40	±0.15
143PC15D	±15	---	---	±1.00	±1.50	0.177	50	±0.75	±0.40	±0.15

### 140PC SERIES ORDER GUIDE, ABSOLUTE TYPE \*

Catalog Listing	Pressure Range psia	Shift Null, Sensitivity, Combined**				Sensitivity V/psi	Overpressure psi Max.	Linearity, B.F.S.L.		Repeatability & Hysteresis %Span Typ.
		25 to 5° 25 to 45°C		25 to -18° 25 to +63°C	25 to -40° 25 to 85°C			P2 > P1	P2 < P1	
		%Span								
		Typ.	Max.	Max.	Max.			Max.	Max.	
142PC15A	0-15	±0.50	---	±1.00	±2.00	0.333	45	---	±0.40	±0.15
142PC30A	0-30	±0.50	---	±1.00	±2.00	0.167	60	---	±0.40	±0.15

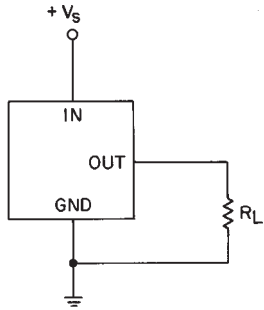
\* Tested at 2 psia reference

\*\* % Span specification applies to each shift independently. (Null, sensitivity, or combined).

## Absolute, Differential, Gage, Vacuum Gage/Amplified

### ELECTRICAL CONNECTION

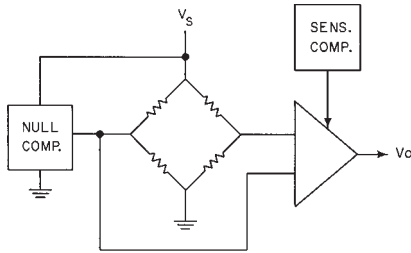
#### Voltage Excitation



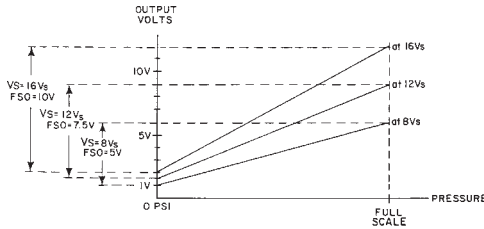
### NOTES

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



### RATIOMETRICITY



Ratiometricity refers to the output voltage being directly proportional to the supply voltage. 140PC sensors in this catalog are calibrated at 8 VDC supply voltage to provide a 1-6 volt (5V Span) output swing. For example, if supply increases by 50% to 12 VDC, the output voltage increases by 50% to 1.5-9 volts (7.5 V Span).

### NOTE

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

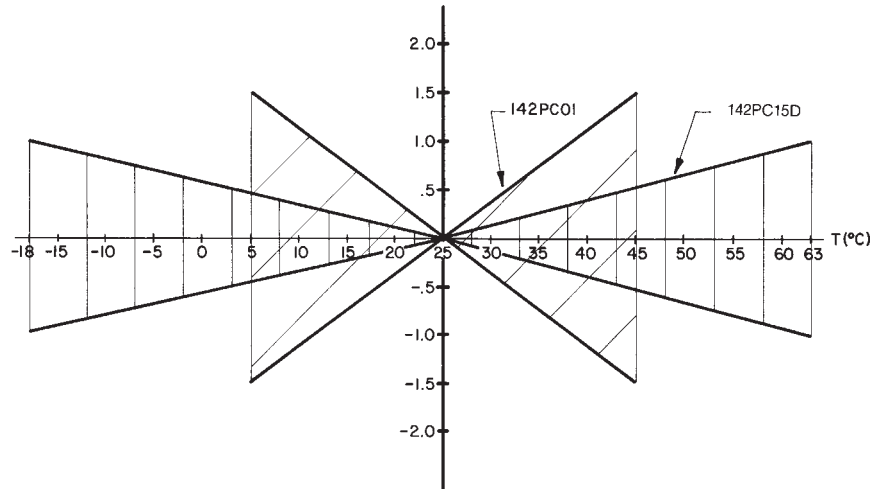
### NULL AND SENSITIVITY TEMPERATURE SHIFT

Amplified pressure sensors are 100% tested to insure that the maximum null and sensitivity temperature shift does not exceed the specification. The diagram below illustrates how null and sensitivity shift relates to temperature. Note that the maximum shift occurs at temperature extremes. Therefore, if a sensor is not ex-

posed to the entire temperature range, the maximum null and sensitivity shift will actually be less than the value specified.

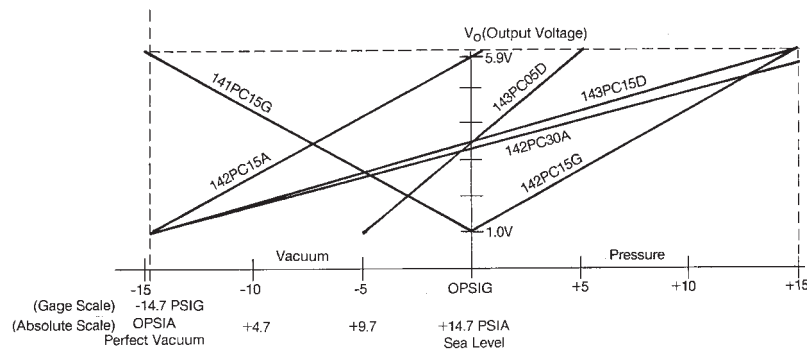
This diagram indicates the temperature shift pertaining to a few listings. Maximum null and sensitivity shift varies from listing to listing.

NULL AND SENSITIVITY SHIFT (% F.S.O.)



Amplified

### SCALING OF 140PC SERIES SENSORS WITH 8V EXCITATION



142PC15A	Absolute	$V_o = 1 \text{ V at } 0 \text{ psia} \text{ \& } 6 \text{ V at } 15 \text{ psia}$
142PC30A	Absolute	$V_o = 1 \text{ V at } 0 \text{ psia} \text{ \& } 6 \text{ V at } 30 \text{ psia}$
142PC15G	Gage	$V_o = 1 \text{ V at } 0 \text{ psig} \text{ \& } 6 \text{ V at } 15 \text{ psig}$
141PC15G	Vacuum Gage	$V_o = 1 \text{ V at } 0 \text{ psig} \text{ \& } 6 \text{ V at } -15 \text{ psig}$
143PC05D	Differential	$V_o = 1 \text{ V at } -5 \text{ psig} \text{ \& } 6 \text{ V at } 5 \text{ psig}$
143PC15D	Differential	$V_o = 1 \text{ V at } -15 \text{ psig} \text{ \& } 6 \text{ V at } 15 \text{ psig}$

**NOTE:** 141PC sensors are scaled for vacuum pressure on P2.

142PC sensors are scaled for greater pressure on the P2 side of the chip. Input pressures on absolute units are applied to the P1 port.

Other scalings available upon request.