Honeywell

Interactive Catalog Replaces Catalog Pages

Honeywell Sensing and Control has replaced the PDF product catalog with the new Interactive Catalog. The Interactive Catalog is a power search tool that makes it easier to find product information. It includes more installation, application, and technical information than ever before.

Click this icon to try the new Interactive Catalog.

Pressure Sensors

Absolute, Differential, Gage, Vacuum Gage/Amplified

FEATURES

- PCB terminals on opposite side from the ports
- Fully signal conditioned

140PC 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 (141/142PC)	0.95	1.00	1.05	V
Null Offset (143PC)*	3.45	3.50	3.55	V
Null Offset				
142PC15A @ 2 psia	1.62	1.67	1.72	V
142PC30A @ 2 psia	1.28	1.33	1.38	V
Output at Full Pressure	5.90	6.00	6.10	V
Span† (141/142PC)	4.95	5.00	5.05	V
Span† (143PC)*	---	5.00	---	V
Span				
142PC15A (2 to 15 psia)	4.28	4.33	4.48	V
142PC30A (2 to 30 psia)	4.62	4.67	4.72	V
Ratiometricity Error				
7 to 8 V or 8 to 9 V	---	±0.50	---	%Span
9 to 12 V	---	±2.00	---	
Stability over One Year	---	±0.50	---	%Span
Response Time	---	---	1.00	msec
Common Mode Pressure**	---	---	40	psi
Weight	---	28	---	grams
Short Circuit Protection	Output may be shorted indefinitely to ground			
Output Ripple	None, DC device			
Ground Reference	Supply and output are common			

*Positive and negative pressure measurement.
**Higher common mode pressures possible if sensor is not used over entire operating temperature range.
†Span is defined as the algebraic difference between end points. Please note: actual output is 1 V to 6 V (at 8.00 ±0.01 VDC). Span is then 5V.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	−40° to +85°C (−40° to +185°F)	
Storage Temperature	−55° to +125°C (−67° to +257°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; 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.

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

140PC SERIES ORDER GUIDE, GAGE TYPE

Catalog Listing	Pressure Range psi	Shift Null, Sensitivity, Combined**				Sensitivity V/psi	Overpressure psi Max.	Linearity, B.S.F.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.	
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

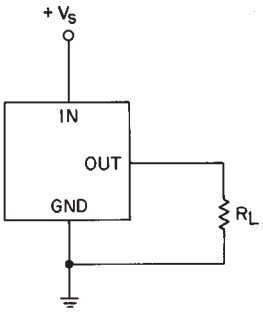
Catalog Listing	Pressure Range psi	Shift Null, Sensitivity, Combined**				Sensitivity V/psi	Overpressure psi Max.	Linearity, B.F.S.L.		Repeatability & Hysteresis %Span Typ.
		25 to 5° 25 to 45°C		25 to −18° 25 to +63°C	25 to −40° 25 to 85°C			P2 > P1	P2 < P1	
								%Span		
		Typ.	Max.	Max.	Max.			Max.	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

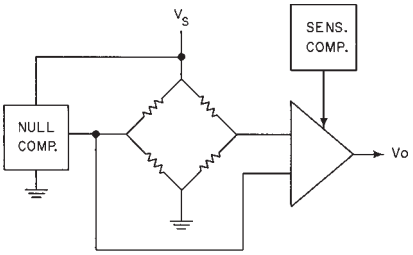
*Tested at 2 psia reference
**% Span specification applies to each shift independently. (Null, sensitivity, or combined).

ELECTRICAL CONNECTION
Voltage Excitation

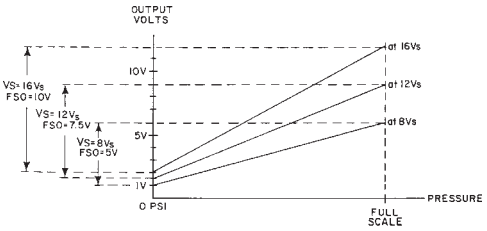


NOTES
1. Terminals are labeled on the sensor.
2. Input and output share a common ground.
3. R_L must be greater than or equal to 3000 ohms.

INTERNAL CIRCUITRY



RATIOMETRICITY



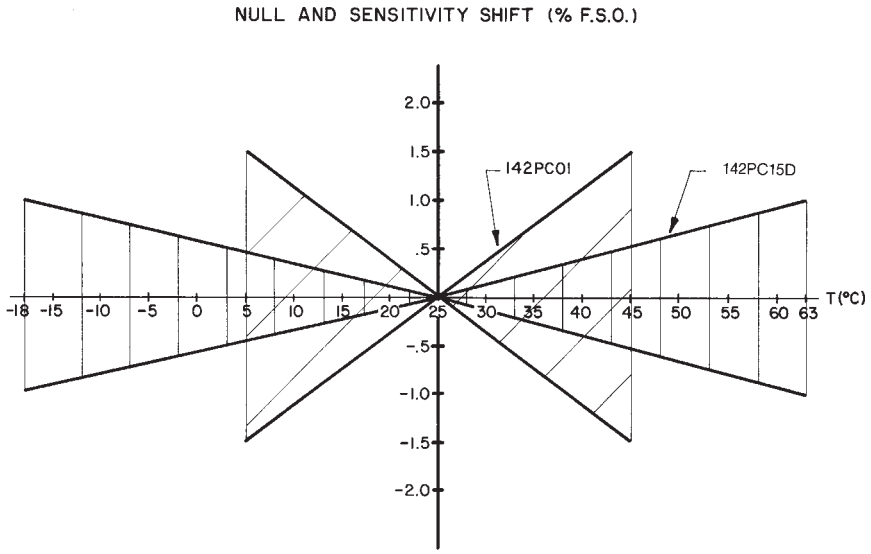
Ratiometricity refers to the output voltage being directly proportional to the supply voltage. 140PC sensors in this catalog are calibrated at 8 VDC supply voltage to provide a 1-6 volt (5V Span) output swing. For example, if supply increases by 50% to 12 VDC, the output voltage increases by 50% to 1.5-9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

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

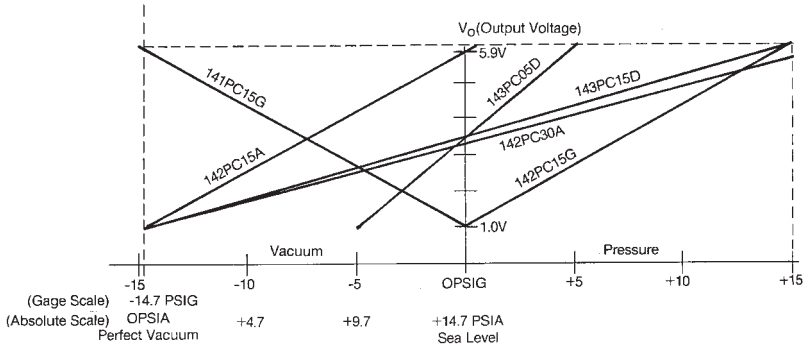
NULL AND SENSITIVITY TEMPERATURE SHIFT

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 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.



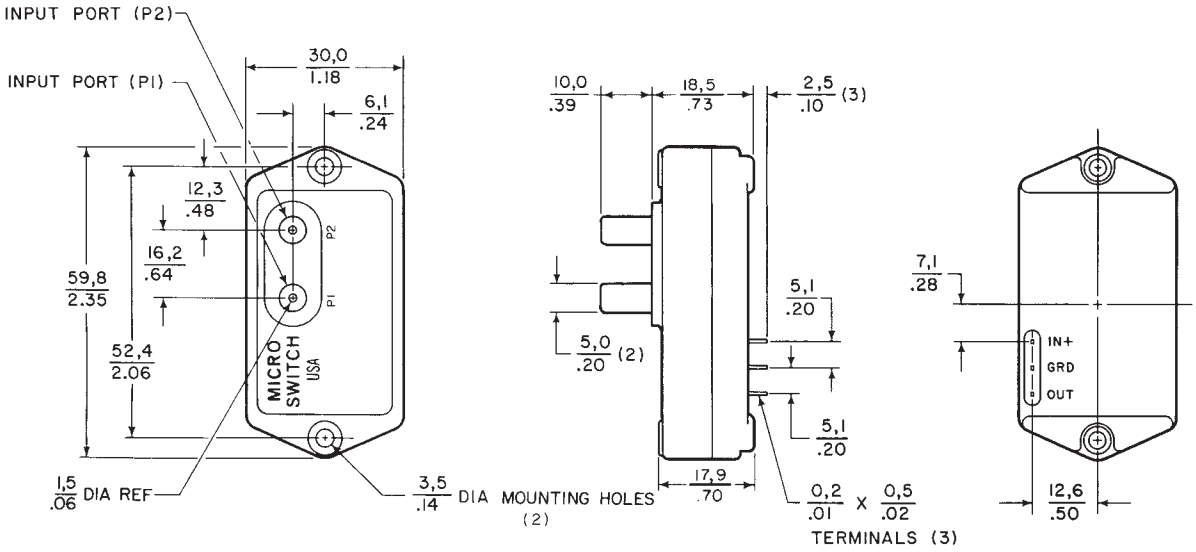
SCALING OF 140PC SERIES SENSORS WITH 8V EXCITATION



142PC15A	Absolute	V_o = 1 V at 0 psia & 6 V at 15 psia
142PC30A	Absolute	V_o = 1 V at 0 psia & 6 V at 30 psia
142PC15G	Gage	V_o = 1 V at 0 psig & 6 V at 15 psig
141PC15G	Vacuum Gage	V_o = 1 V at 0 psig & 6 V at −15 psig
143PC05D	Differential	V_o = 1 V at −5 psig & 6 V at 5 psig
143PC15D	Differential	V_o = 1 V at −15 psig & 6 V at 15 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.

MOUNTING DIMENSIONS (For reference only)



Dimensions shown apply to Differential and Absolute versions. Gage units are identical, except the P1 port is absent.

140PC CONSTRUCTION