



# RCO Series

## Precision compensated pressure sensors

### FEATURES

- 0...50 mbar to 0...10 bar,  
0...1 to 0...150 psi,  
differential, gage or absolute
- Temperature compensated
- Calibrated zero and span
- High impedance for low power applications
- Sensortech PRO services



### MEDIA COMPATIBILITY

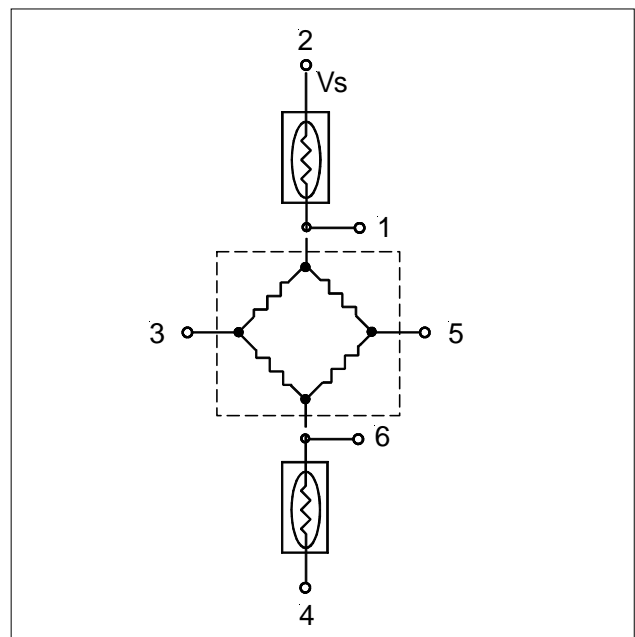
To be used with non-corrosive, non-ionic working fluids such as clean dry air, dry gases and the like.

### SPECIFICATIONS

#### Maximum ratings

Supply voltage $V_s$	+20 V <sub>DC</sub>
Lead temperature (soldering 4 sec.)	250 °C
Temperature ranges	
Compensated	0 to 70 °C
Operating	-40 to 85 °C
Storage	-55 to 125 °C
Humidity limits (non-condensing)	0 to 100% RH
Common mode pressure	50 psig

### EQUIVALENT CIRCUIT





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### PRESSURE RANGES SPECIFICATIONS<sup>1</sup>

#### RCO...P (Prime Grade) devices

Part number	Operating pressure	Proof pressure <sup>2</sup>	Full-scale span <sup>3</sup>		
			Min.	Typ.	Max.
RCOM050...P	0...50 mbar	1.4 bar	12.92 mV	13.05 mV	13.18 mV
RCOM100...P	0...100 mbar	1.4 bar	25.84 mV	26.10 mV	26.37 mV
RCOM250...P	0...250 mbar	1.4 bar	43.1 mV	43.5 mV	43.9 mV
RCOB001...P	0...1 bar	2.1 bar	86.2 mV	87.0 mV	87.9 mV
RCOB002...P	0...2 bar	4.2 bar	86.2 mV	87.0 mV	87.9 mV
RCOB005...P	0...5 bar	10 bar	71.8 mV	72.5 mV	73.2 mV
RCOB010...P	0...10 bar	10 bar	86.0 mV	87.0 mV	88.0 mV
RCOP001...P	0...1 psi	20 psi	17.82 mV	18.0 mV	18.18 mV
RCOP005...P	0...5 psi	20 psi	59.40 mV	60.0 mV	60.60 mV
RCOP015...P	0...15 psi	30 psi	89.10 mV	90.0 mV	90.90 mV
RCOP030...P	0...30 psi	60 psi	89.10 mV	90.0 mV	90.90 mV
RCOP100...P	0...100 psi	150 psi	99.00 mV	100.0 mV	101.0 mV
RCOP150...P	0...150 psi	150 psi	89.00 mV	90.0 mV	91.0 mV

#### RCO...H (High Grade) devices

Part number	Operating pressure	Proof pressure <sup>2</sup>	Full-scale span <sup>3</sup>		
			Min.	Typ.	Max.
RCOM050...H	0...50 mbar	1.4 bar	12.3 mV	13.05 mV	13.8 mV
RCOM100...H	0...100 mbar	1.4 bar	24.6 mV	26.1 mV	27.6 mV
RCOM250...H	0...250 mbar	1.4 bar	41.7 mV	43.5 mV	45.3 mV
RCOB001...H	0...1 bar	2.1 bar	82.2 mV	87.0 mV	91.9 mV
RCOB002...H	0...2 bar	4.2 bar	82.2 mV	87.0 mV	91.9 mV
RCOB005...H	0...5 bar	10 bar	68.9 mV	72.5 mV	76.1 mV
RCOB010...H	0...10 bar	10 bar	82.2 mV	87.0 mV	91.9 mV
RCOP001...H	0...1 psi	20 psi	17 mV	18 mV	19 mV
RCOP005...H	0...5 psi	20 psi	57.5 mV	60 mV	62.5 mV
RCOP015...H	0...15 psi	30 psi	85 mV	90 mV	95 mV
RCOP030...H	0...30 psi	60 psi	85 mV	90 mV	95 mV
RCOP100...H	0...100 psi	150 psi	95 mV	100 mV	105 mV
RCOP150...H	0...150 psi	150 psi	85 mV	90 mV	95 mV



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### PERFORMANCE CHARACTERISTICS<sup>1</sup>

#### RCO...P (Prime Grade) devices

Characteristics	Min.	Typ.	Max.	Unit	
Zero pressure offset	all RCO...DP devices	-0.25	0	+0.25	mV
	all RCO...AP devices <sup>12</sup>	-0.50	0	+0.50	
Combined linearity and hysteresis <sup>4</sup>		±0.1	±0.5	%FSO	
Temperature effects (0 to 70°C) <sup>5</sup>	Offset	±0.1	±0.5	mV	
	Span	±0.2	±1.0	%FSO	
Repeatability <sup>6</sup>		±0.2	±0.5		
Input impedance <sup>7</sup>		4.0		kΩ	
Output impedance <sup>8</sup>		4.0			
Common mode voltage <sup>9</sup>	5.8	6.0	6.2	V <sub>DC</sub>	
Response time <sup>10</sup>		100		µsec	
Long term stability of offset and span <sup>11</sup>		±0.1		mV	

#### RCO...H (High Grade) devices

Characteristics	Min.	Typ.	Max.	Unit	
Zero pressure offset	all RCO...DH devices	-0.50	0	+0.50	mV
	all RCO...AH devices <sup>12</sup>	-1.00	0	+1.00	
Combined linearity and hysteresis <sup>4</sup>		±0.2	±1.0	%FSO	
Temperature effects (0 to 70°C) <sup>5</sup>	Offset	±0.2	±1.0	mV	
	Span	±0.4	±2.0	%FSO	
Repeatability <sup>6</sup>		±0.2	±0.5		
Input impedance <sup>7</sup>		4.0		kΩ	
Output impedance <sup>8</sup>		4.0			
Common mode voltage <sup>9</sup>	5.7	6.0	6.3	V <sub>DC</sub>	
Response time <sup>10</sup>		100		µsec	
Long term stability of offset and span <sup>11</sup>		±0.1		mV	

#### Specification notes:

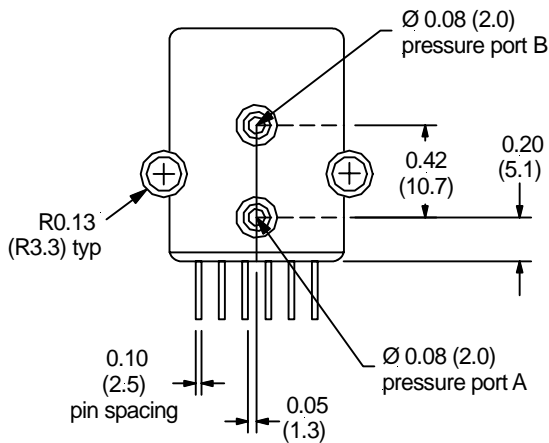
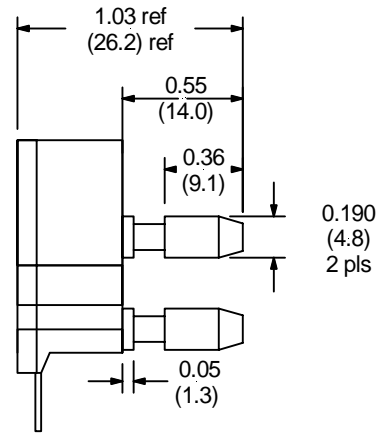
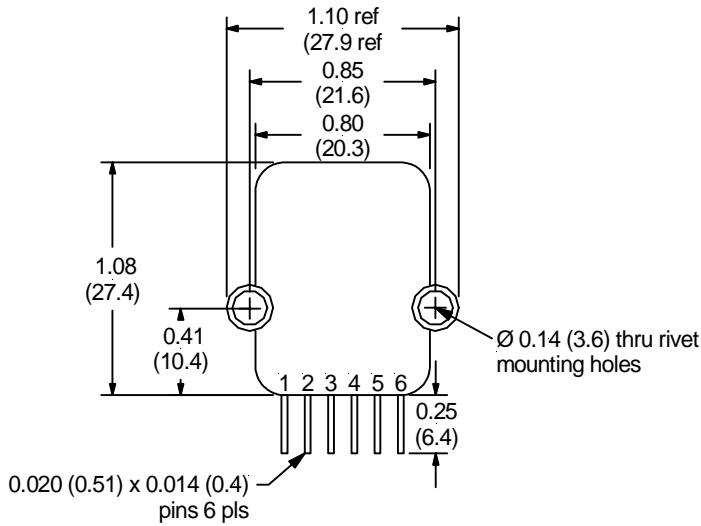
1. Reference conditions:  $V_S = 12\text{ V}$ ,  $T_A = 25^\circ\text{C}$ , common-mode line pressure = 0 barg, pressure applied to Port B. For absolute devices only, pressure is applied to Port A and the output polarity is reversed.
2. Maximum pressure above which causes permanent sensor failure.
3. Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
4. Hysteresis - the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
5. Maximum error band of the offset voltage and the error band of the span, relative to the 25°C reading.
6. Maximum difference in output at any pressure with the operating pressure range and temperature within 0°C to +50°C after:
  - a) 1,000 temperature cycles, 0°C to +70°C
  - b) 1.5 million pressure cycles, 0 psi to full-scale span
7. Input impedance is the impedance between pins 2 and 4.
8. Output impedance is the impedance between pins 3 and 5.
9. This is the common-mode voltage of the output arms (pins 3 and 5) for  $V_S = 12\text{ V}_{DC}$ .
10. Response time for a 0 bar to full-scale span pressure step change, 10 % to 90 % rise time.
11. Long term stability over a one year period.
12. Absolute devices with improved zero pressure offset values are available on request. Please contact your nearest Sensorteknics sales office for further information.



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### PHYSICAL DIMENSIONS



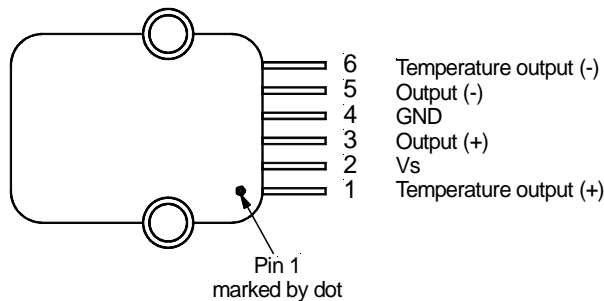
mass: 5 g

**Port B:**  
High pressure Port for gage and differential devices

**Port A:**  
High pressure Port for absolute devices

dimensions in inches (mm)

### ELECTRICAL CONNECTION



**Note:** The polarity indicated is for pressure applied to port B. For absolute devices pressure is applied to port A and the output polarity is reversed.



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### ORDERING INFORMATION

Options	Series	Pressure range		Pressure mode		Grade	
		RCO	M050	50 mbar	A*	Absolute	P
		M100	100 mbar	D	Differential/Gage	H	High
		M250	250 mbar				
		B001	1 bar				
		B002	2 bar				
		B005	5 bar				
		B010	10 bar				
		P001	1 psi				
		P005	5 psi				
		P015	15 psi				
		P030	30 psi				
		P100	100 psi				
		P150	150 psi				

\* only available from  
1 bar/15 psi

Sample order no:	RCO	B001	D	P
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#### Sensortechincs PRO services:

- Extended guarantee period of 2 years
  - Improved performance characteristics
  - Custom product modifications and adaptations even for small quantities
  - Advanced logistics models for supply inventory and short delivery times
  - Technical support through application engineers on the phone or at your site
  - Fastest possible technical response for design and QA engineers
- ... plus other services on request

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