

## MODEL EA-BD, SA-BD • BIDIRECTIONAL PRESSURE TRANSDUCERS

### APPLICATIONS

- REFRIGERATION
- AUTOMOTIVE ENGINE TEST EQUIPMENT
- MEDICAL RESPIRATORS
- PLASMA-PHERESIS MACHINES
- PROCESS CONTROL
- FIRE PUMPS

The EA-BD and SA-BD sense pressure above and below atmospheric pressure without using a vacuum reference chamber. Diaphragm deflections are both positive and negative. The transducers give a 1 Vdc output at a set negative pressure. Their output signal is 1-6 Vdc.

A variety of pressure ranges (negative to positive) are available so you can choose the range best suited for your application.

EA-BD's are gauge models and SA-BD's are sealed. They find wide use in applications where pressures can go from below atmospheric to considerably above - such as in medical respirators or refrigeration.



### FEATURES

- Diaphragm deflects bidirectionally
- Many ranges available
- Stainless steel wetted parts
- 1-6 Vdc output

### BENEFITS

- Measure pressure above and below atmospheric
- Maximum sensitivity for your application
- Can be used with corrosive liquids and gases
- Compatible with microprocessors

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# MODEL EA-BD, SA-BD • BIDIRECTIONAL PRESSURE TRANSDUCERS

## TECHNICAL SPECIFICATIONS

### RANGE

EA-BD	SA-BD
-1.2 to 4.8, -6 to 9, -14.7 to 10.3, -14.7 to 34.3, -14.7 to 85.3, -10 to 90 PSIG	-14.7 to 85.3 PSIG
(-0.08 to 0.33, -0.41 to 0.62, -1 to 0.7, -1 to 2.4, -1 to 5.9, -0.7 to 6.2 bar g)	(-1 to 5.9 bar g)

(bar values are approximate)

### PHYSICAL

<b>Proof Pressure</b>	2 x rated range	2 x rated range
<b>Burst Pressure</b>	20 x rated range	10 x rated range
	(10 x over 25 PSIG)	
<b>Material in Contact With Media</b>	Brazen assembly of 300 series stainless steel	
<b>Shock</b>	50 g's peak (5 milliseconds)	
<b>Vibration</b>	Meets MIL-STD 810-C, Figure 514.2-5, Curve AP, 20.7 g rms minimum	
<b>Weight</b>	Less than 3 oz (85 gm) without cable or connector	

### ELECTRICAL

<b>Full Scale Output</b>	5 ± 0.1 Vdc @ 25°C (1-6V)	
<b>Zero Output</b>	See table at right Tolerance is ± 0.25 Vdc for EA-BD; ± 0.20 Vdc for SA-BD	
<b>Excitation</b>	8 to 24 Vdc	9 to 24 Vdc @ 15 mA
<b>Output Current (nominal)</b>	Source: 10 mA Sink: 5 mA	
<b>Reverse Polarity Protection</b>	EA: no	SA: Yes
<b>Insulation Resistance</b>	1000 M (nominal)	
<b>Electrical Connection</b>	See EA and SA product descriptions	

### PERFORMANCE

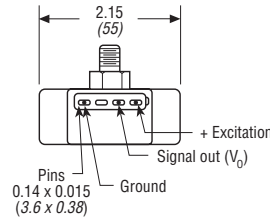
<b>Accuracy</b>	± 1.4% FSO	± 1.3% FSO
	For best fit straight line including effects of nonlinearity, hysteresis and nonrepeatability	
<b>Operating Temperature Range</b>	-55° to 100°C (-67° to 212°F)	-55° to 100°C (-67° to 212°F)
<b>Compensated Temperature Range</b>	-1° to 85°C (30° to 185°F)	
<b>Thermal Effect on Zero</b>	Less than ± 1.8% FSO	Less than ± 1.5% FSO
	For any 55°C (100°F) change within the compensated range	
<b>Thermal Effect on Full Scale Output</b>	Less than ± 1.4%	Less than ± 1.3%
	For any 55°C (100°F) change within the compensated range	

#### Note:

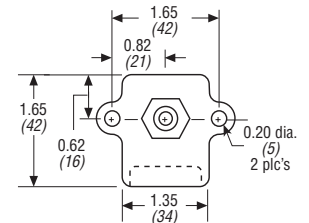
- RFI PROTECTION FOR SA-BD  
The SA-BD has RFI protection. Output error is typically less than 1% full scale over the frequency range from 20 MHz to 1 GHz at field strengths up to 10 volts/meter. The SA-BD also has reverse polarity protection.
- EA-BD HAS VALOX CASE  
The EA-BD has a Valox case with crimp pins. A mating connector is supplied with the transducer.
- All specifications are measured at 25°C and rated excitation unless otherwise stated

### DIMENSIONS

xx.xx = inches  
(xx.x) = mm

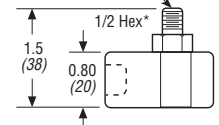


### Model EA-BD



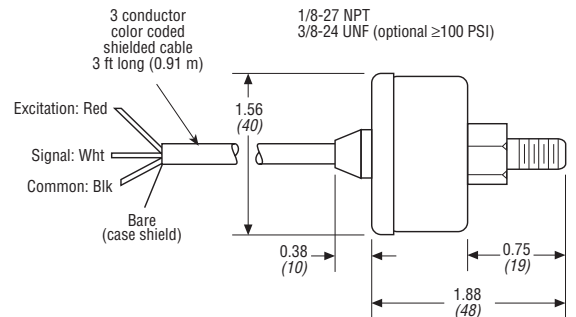
Available ports:

- 1/4 (6.35) O.D. straight SS port (0-6 to 0-50 PSI)
- 1/8-27 NPT (for EA/6 through 5000)
- 3/8-24 UNF (optional on 5000)



\*9/16 Hex for 3/8-24 UNF port

### Model SA-BD



1/8-27 NPT  
3/8-24 UNF (optional ≥100 PSI)

1/2 Hex for 1/8-27 NPT port  
9/16 Hex for 3/8-24 UNF port

### ZERO OUTPUT

Range	Nominal voltage output of 0 PSIG(s)
-1.2 to +4.8 PSIG	2.00
-6.0 to +9.0 PSIG	3.00
-14.7 to +10.3 PSIG	3.94
-14.7 to +35.3 PSIG	2.74
-14.7 to +85.3 PSIG	1.74
-10.0 to +90.0 PSIG	1.50
-14.7 to +185.3 PSIG	1.37