

FOXBORO/ICT

ISO-TECHNOLOGY®
PRESSURE TRANSDUCER

MODEL 1230/1231

Features

- Fully compensated and calibrated
- All 316L SS media wetted materials
- Compact package size
- 0-100 mV Output
- Standard Ranges:
0-10 PSI to 0-5000 PSI
- Accuracies to $\pm 0.125\%$ (BFSL)
- 1-year warranty

Applications

- Industrial control
- Diagnostics
- Refrigeration
- Environmental controls
- Pollution control



The model 1230 and 1231 transducers are designed for OEM applications requiring 316SS diaphragm protection where size and performance are critical. Each model provides a 0 to 100mV output and allows the customer a great deal of design flexibility.

The 1230 and 1231 are offered with a variety of pressure and electrical connections and may be specified to operate with either current or voltage source excitation.

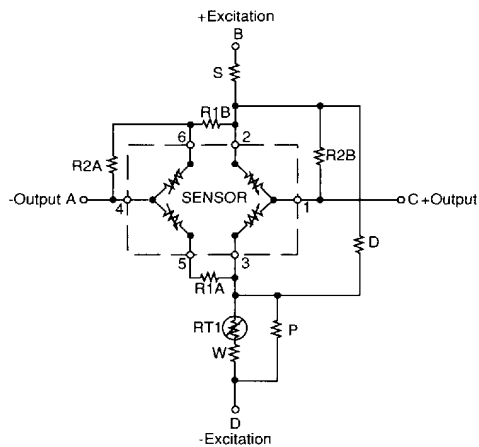
The sensor used in the model 1230 and 1231 is a solid state piezoresistive sensing element which provides excellent stability and typical repeatabilities of $\pm 0.02\%$. The sensing element is encased in 316L Stainless steel using a proprietary ISO-Technology design to enhance performance and reduce package size.

FOXBORO®

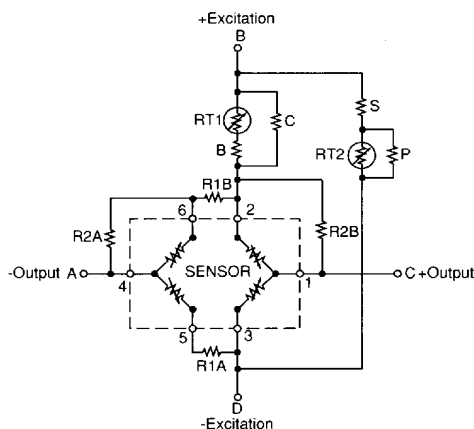
A SIEBE COMPANY

© FOXBORO/ICT

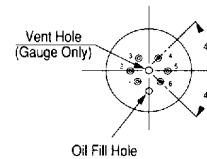
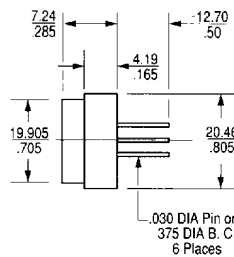
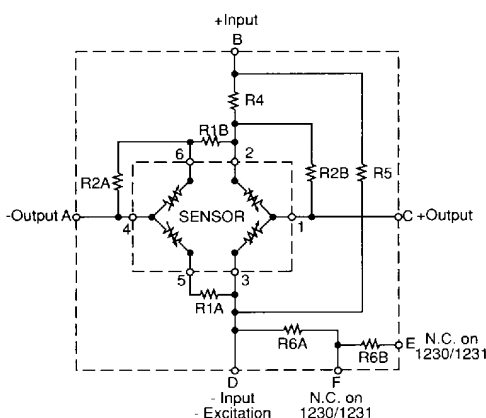
Voltage Excitation



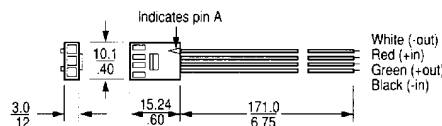
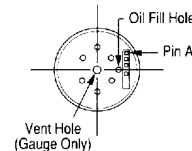
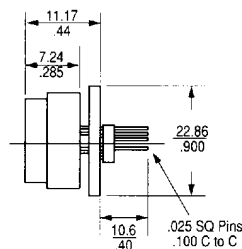
Current Excitation ("A" Grade)



Current Excitation ("B" Grade)



NOTE: Compensated Board
Provided Unattached



mm
in.

The 1230 and 1231 are available in gage, absolute and sealed gage versions. Standard pressure ranges from 0-10 PSI to 0-5000 PSI.

Superior Performance

The combination of Statistical Process Control in our wafer fab and a proprietary ISO-Technology design allow for the manufacture of sensors with superior performance, excellent hysteresis and long-term stability over a wide range of temperatures. Performance is maintained even under severe environmental and application conditions.

Excitation and Compensation

The 1230 and 1231 may be specified to operate with either a voltage or current source. The output span of the sensor is 100mV with either a 10 Volt supply or a 1.5mA excitation. A resistor trim compensation board provides temperature correction over range of 20°C to 82°C and zero and span trim to within ± 2 mV.

Package Design

The 1230 is a 316L stainless steel sensing element that is designed to be used by customers who require a flush diaphragm or wish to design their own custom fitting. The 1230 can be either welded to a fitting or used with an O-ring seal. As an alternative, the 1231 offers several standard pressure connection options. In each case, the 1231 fittings are welded to the sensing element to ensure that all media wetted surfaces are 316L stainless steel.

Electrical connection can be made either to the sensor leads or to the resistor trim compensation board. An optional mating connector is also available.

Performance Specifications

GRADE					
TEMPERATURE COMPENSATED PERFORMANCE	A		B		UNITS
	Max	Min	Max	Min	
REFERENCE ACCURACY (L+H+R)					
(Non-linearity, hysteresis, non-repeatability)					
0 to 10 PSI			± 0.25		% Span, BFSL
15 to 500 PSI	± 0.125		± 0.25		% Span, BFSL
1000 to 1500 PSI	± 0.25		± 0.50		% Span, BFSL
2000 to 5000 PSI			± 1.00		% Span, BFSL
OUTPUT					
Span Output:	100 ± 2		100 ± 2		mVdc
Zero pressure output:	0 ± 2		0 ± 2		mVdc
TEMPERATURE					
Maximum Span Zero Temperature Error:					
0 to 10 PSI			± 2.50		± % Span in reference to 27° C
15 to 500 PSI	± 1.25		± 2.50		± % Span in reference to 27° C
1000 to 1500 PSI	± 1.25		± 2.50		
2000 to 5000 PSI			± 2.50		
Compensated Temperature Range:	-20 to 180° F (-28 to 82° C)				
Operating Temperature Range:					
Media Temperature	-40 to + 250° F (-40 to + 121° C)				
Ambient Temperature	-40 to + 250° F (-40 to + 121° C)				
LONG TERM STABILITY	0.3		0.3		± % Span per 6 months

Electrical Specifications

Input Excitation - Current:	≤ 2.0 mA
- Voltage:	≤ 15.0 Vdc
Electrical Connection:	Standard: Four 0.025" square leads, 0.32" long 0.10" spacing between leads. Optional mating connector wing 6", 22 AWG wire
Output Common Mode Voltage:	50% of input, typical
Input Impedance - Current:	2KΩ min. - 8KΩ max.
- Voltage:	8KΩ min. - 50KΩ max.
Output Impedance:	3.5KΩ min. - 6K max.
Response Time (10% to 90%):	≤ 1 millisecond
Insulation Resistance:	100MΩ at 50 Vdc
Isolation Voltage:	500 Vdc or ac RMS between the case and electrical connections will not cause damage.

Environmental Conditions

Position Effect:	≤ 0.05% of Span Zero shift for 90° tilt in any direction
Vibration Effect:	No change at 10 G's RMS, 20 to 2000 Hz
Shock:	100 G's for 11 milliseconds
Life:	1 million cycles

Physical Specifications

Pressure Overrange Protection:	2X or 7500 PSI, whichever is less, with ≤ ± 0.05% of Zero output shift
Pressure Connection:	See model code
Media Compatibility	
Diaphragm Side:	Fluids, gases compatible with 316L SS
Gage Hole (if gage unit):	Fluids, gases compatible with silicon, pyrex, RTV, and 316L SS
Materials of Construction	
Sensor and Process Filling:	316L SS
Mass 1230:	0.8 ounces (22.5 grams)
Mass 1231:	4.2 ounces (120.0 grams)
Fill Fluid:	Dimethylsiloxane (DC-200) Less than 0.1 CC

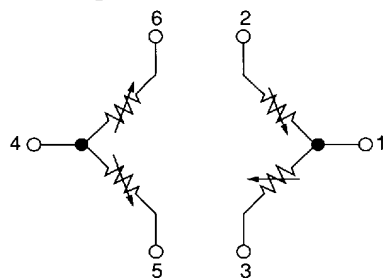
Reference Specifications

Media Temperature:	80° ± 2° F (27° ± 1° C)
Ambient Temperature:	80° ± 2° F (27° ± 1° C)
Vibration:	0.1G (1m/s/s) max
Humidity:	50% ± 10%
Ambient Pressure:	12.5 to 15.4 PSI (860 to 1060mBar)
Power Supply - Current Input:	1.5 mAdc ± 0.1%
Power Supply - Voltage Input:	10 Volts ± 0.1%
Excitation Source:	1.5 ± 0.0015 mA or 10 ± 0.01 Vdc

FOXBORO/ICT INC Sensing Elements

50E

3704515 0000412 199 FXB T-65.13



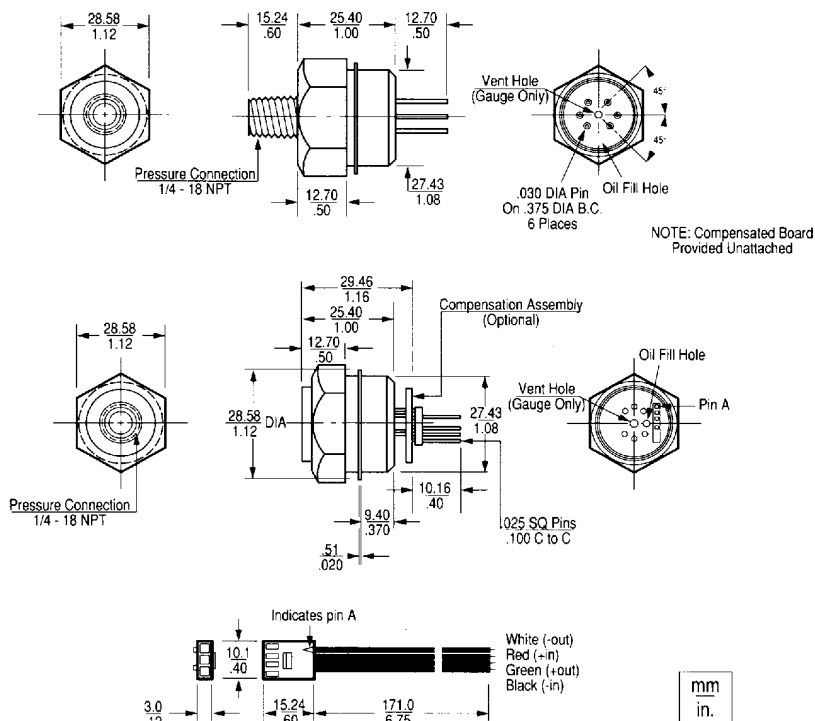
External Connections

Standard Output:

Pin	Connection
A	- Output
B	+ Input
C	+ Output
D	- Input

Multi-Pin Connector:

Wire Color	Connection
White	- Output
Red	+ Input
Green	+ Output
Black	- Input



Ordering Information

Model 1230/1231

Pressure Range -

Sensor Type -

Excitation -

Pressure Connection -

Temperature Compensation -

Accuracy -

Accessories -

Sensor Type

G = Gage Pressure
A = Absolute Pressure
S = Sealed Gage Pressure

Excitation

K = 10 Vdc
L = 1.5 mA

Pressure Connections

1230
6 = Flush Mount
1231
4 = 1/4" Female NPT
5 = 1/4" Male NPT
7 = 1/2" Male NPT

Temperature Compensation

L = Temperature
Compensation Board
Attached
M = Temperature
Compensation Board
Unattached (Standard)

Accessories

C = Mating Connector
with leads

Reference Accuracy Grade

A = Enhanced
B = Standard

Pressure Ranges and Types

02 = 0-10 G,A	09 = 0-100 G,A	16 = 0-2000 S,A	1231 only
03 = 0-15 G,A	12 = 0-300 G,A		17 = 0-3000 S,A
08 = 0-50 G,A	14 = 0-1000 G,A		18 = 0-5000 S,A



© FOXBORO/ICT

February, 1992

Foxboro/ICT, Inc.
199 River Oaks Parkway
San Jose, CA 95134
Telephone: (408) 432-1010
FAX: (408) 432-1860

4