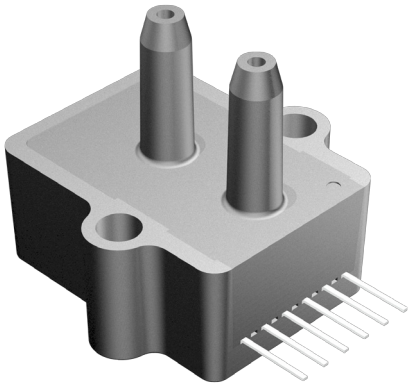
MILLIVOLT OUTPUT PRESSURE SENSORS

Prime Grade
Pressure Sensors



Features

- 0 to 0.3 PSI to 0 to 150 PSI Pressure Ranges
- Highest accuracy version
- Temperature Compensated
- Calibrated Zero and Span

Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

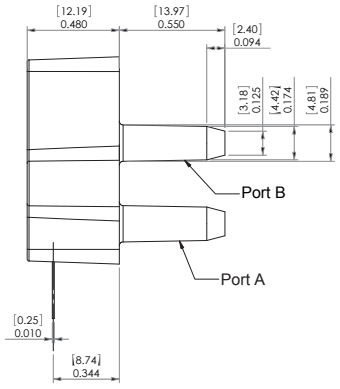
General Description

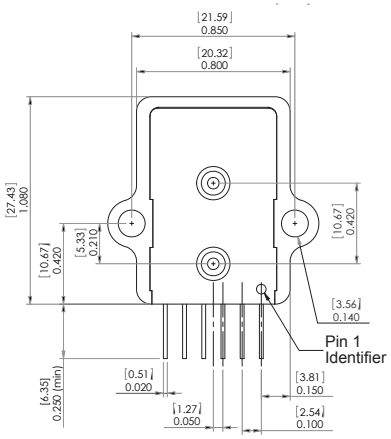
The Millivolt Output pressure sensor is based upon a proprietary packaging technology to reduce output offset or common mode errors. This model provides a calibrated millivolt output with excellent output offset characteristics. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The PRIME GRADE is the highest accuracy version of the millivolt output pressure sensors.

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage up to +16 V is acceptable.

Physical Dimensions





pin 1: N/C
pin 2: +V supply
pin 3: +Voutput
pin 4: -Vsupply
pin 5: -Voutput
pin 6: N/C

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Pressure Sensor Characteristics Maximum Ratings

Supply Supply Voltage VS	16 Vdc
Common-mode pressure	50 psig
Lead Temperature (soldering 2-4 sec.)	270°C

Environmental Specifications

Temperature Ranges	
Compensated	0 to 70° C
Operating	-25 to 85° C
Storage	-40 to 125° C
Humidity Limits	0 to 95% RH (non condensing)

Standard Pressure Ranges

Part Number	Operating Pressure	Nominal Span	Proof Pressure	Burst Pressure
0.3 PSI-D-PRIME-MV	0 - 0.3 PSI	20 mV	5 PSI	15 PSI
1 PSI-D-PRIME-MV	0 - 1 PSI	18 mV	5 PSI	15 PSI
5 PSI-D-PRIME-MV	0 - 5 PSI	60 mV	10 PSI	30 PSI
15 PSI-D-PRIME-MV	0 - 15 PSI	90 mV	60 PSI	120 PSI
15 PSI-A-PRIME-MV	0 - 15 PSIA	90 mV	60 PSIA	120 PSIA
30 PSI-D-PRIME-MV	0 - 30 PSI	90 mV	90 PSI	150 PSI
30 PSI-A-PRIME-MV	0 - 30 PSIA	90 mV	90 PSIA	150 PSIA
100 PSI-D-PRIME-MV	0 - 100 PSI	100 mV	200 PSI	250 PSI
100 PSI-A-PRIME-MV	0 - 100 PSIA	100 mV	200 PSIA	250 PSIA
150 PSI-D-PRIME-MV	0 - 150 PSI	90 mV	200 PSI	250 PSI

Performance Characteristics for 0.3 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	19.8	20.0	20.2	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.1	0.25	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 1 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	17.82	18.0	18.18	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.1	0.25	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 5 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	59.4	60.0	60.6	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.1	0.25	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 15 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	89.1	90.0	90.9	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 15 PSI-A-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	89.1	90.0	90.9	mV	4
Offset Voltage @ zero absolute pressure	-	-	±0.5	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 30 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	89.1	90.0	90.9	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

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Performance Characteristics for 30 PSI-A-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	89.1	90.0	90.9	mV	4
Offset Voltage @ zero absolute pressure	-	-	±0.5	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 100 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	99.0	100	101	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 100 PSI-A-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	99.0	100	101	mV	4
Offset Voltage @ zero absolute pressure	-	-	±0.5	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Performance Characteristics for 150 PSI-D-PRIME-MV

Parameter[1]	Minimum	Nominal	Maximum	Units	Notes
Output Span	89.1	90.0	90.1	mV	4
Offset Voltage @ zero differential pressure	-	-	±0.3	mV	-
Offset Temperature Shift (0°C-70°C)	-	-	±250	uV	2
Linearity, hysteresis error	-	0.15	0.30	%FSS	3
Span Temperature Shift (0°C-70°C)	-	-	±1.0	%FSS	2

Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 12.0 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED TO PORT B. FOR ABSOLUTE DEVICES, PRESSURE IS APPLIED TO PORT A AND THE OUTPUT POLARITY IS REVERSED

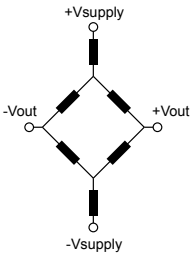
NOTE 2: SHIFT IS RELATIVE TO 25°C.

NOTE 3: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

NOTE 4: THE SPAN IS THE ALGERBRAIC DIFFERENCE BETWEEN FULL SCALE OUTPUT VOLTAGE AND THE OFFSET VOLTAGE.

Pressure Response: for any pressure applied the response time to get to 90% of pressure applied is typically less than 100 useconds.

Equivalent Circuit



Input Resistance	5.0 k ohm
Output Resistance	3.0 k ohm

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