SDXL005D4

0 -5" H2O Compensated Pressure Sensors in a DIP Package

SenSym

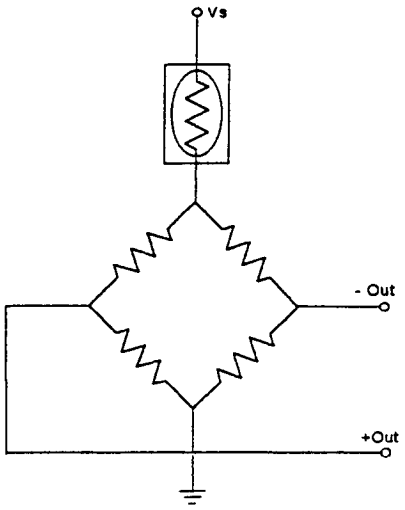
Features

- **Low Cost DIP**
- **Temperature Compensated**
- **Calibrated Zero and Span**
- **Small Size**
- **Low Noise**
- **High Impedance for Low Power Applications**

Applications

- **Medical Equipment**
- **Computer Peripherals**
- **Pneumatic Controls**
- **HVAC**

Equivalent Circuit



General Description

Preliminary

The SDX series sensors will provide a very cost effective solution for pressure applications that require small size plus performance. These calibrated and temperature compensated sensors give an accurate and stable output over a 0°C to 50°C temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like.

The SDXL005D4 devices are specifically designed to measure low pressures. They feature a 0 to 5 IN H2O full scale pressure range.

The output of the bridge is ratiometric to the supply voltage and operation from any D.C. supply voltage up to +20 V is acceptable.

The SDX devices feature an integrated circuit sensor element and laser trimmed thick film ceramic housed in a compact solvent resistant case. The package is a double wide (i.e., 0.600" lead spacing) dual-inline-package. This is the same familiar package used by IC manufacturers except it has integral pressure port(s). The pc board area used by each DIP is approximately 0.26 square inches. This extremely small size enables the use of multiple sensors in limited available space.

The DIP mounts on a pc board like a standard IC with through-hole pins. The pins anchor the pressure sensor to the pc board and provide a more secure and stable unit than other types of packages.

Pressure Sensor Characteristics (all devices)

Maximum Ratings

Supply Voltage V_S	+20 Vdc
Maximum Pressure on any port	50 psig
Lead Temperature (soldering 2-4 sec.)	250°C
Burst Pressure	10 psi

Environmental Specifications

Temperature Ranges	
Compensated	0°C to 50°C
Operating	-40°C to +85°C
Storage	-55°C to +125°C
Humidity Limits	0 to 100% RH

Standard Pressure Ranges

part number	operating pressure	proof pressure	FULL SCALE SPAN[2] minimum	typical	maximum
SDXL005D4	0 - 5 InH2O	200 InH2O	24.5 mV	25.0 mV	25.5 mV

Performance Characteristics [1]

Characteristic	minimum	typical	maximum	units
zero pressure offset	-1.0	0	+1.0	mV
combined linearity &hysteresis[3]	--	±0.2	±1.0	% FSS
temp. effect on span (0-50°C)[4]	--	±0.4	±2.0	%FSS
temp. effect on offset (0-50°C)[4]	--	±0.2	±0.6	mV
repeatability[5]	--	±0.2	--	%FSS
input impedance[6]	--	20.0	--	kΩ
output impedance[7]	--	7.0	--	kΩ
common mode voltage[8]	0.75	3.0	5.5	Vdc
response time[9]	--	100	--	µsec
long term stability of offset & span[10]	--	±0.1	--	%FSS

Specification Notes:

Note 1: Reference Conditions (unless otherwise noted): supply voltage, V_S=12 Vdc; TA=25°C; common mode line pressure=0 psig; pressure applied to port 2.

Note 2: 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.

Note 3: Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.

Note 4: Maximum error band of the offset voltage and the error band of the span, relative to the 25°C reading.

Note 5: Maximum difference in output at any pressure with the operating pressure range and temperature within 0°C to +50°C after:
a) 100 temperature cycles, 0°C to +50°C.
b) 1.0 million pressure cycles, 0 psi to full scale span.

Note 6: Input impedance is the impedance between V_S and ground.

Note 7: Output impedance is the impedance between the + and - outputs.

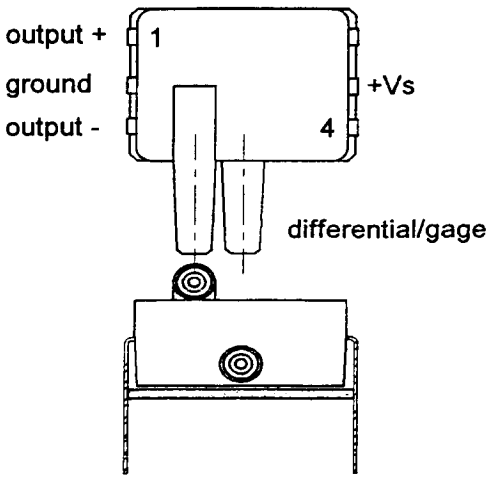
Note 8: This is the common mode voltage of the output arms for V_S=12 Vdc.

Note 9: Response time for a 0 psi to full scale span pressure step change, 10% to 90% rise time.

Note 10: Long term stability over a one year period.

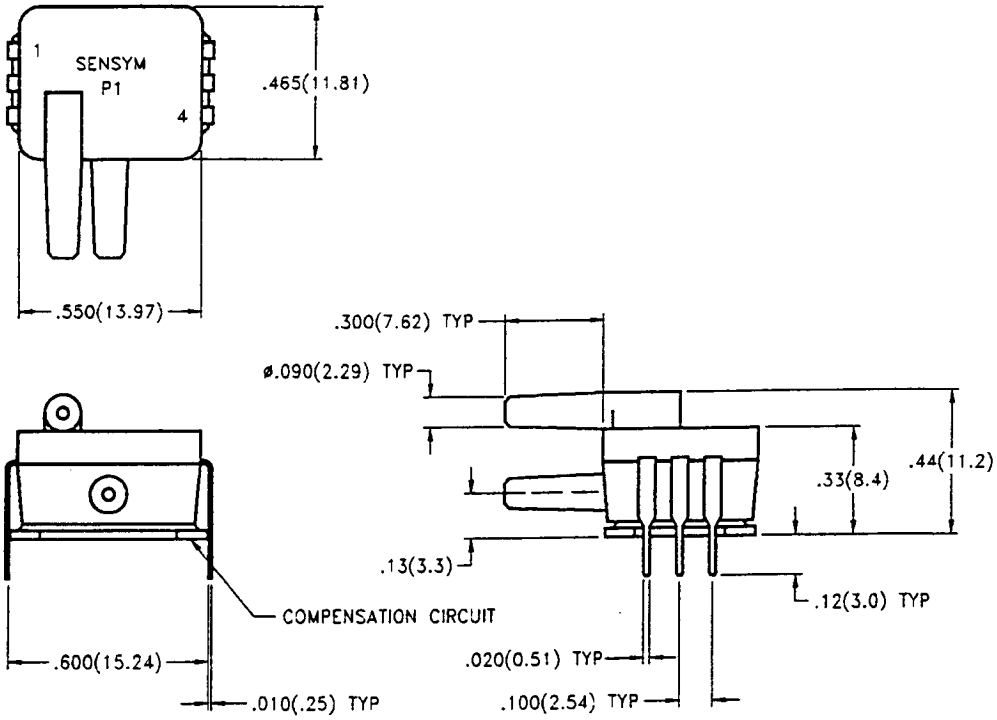
Electrical Connections

Preliminary



SDXxxxD4

Physical Dimensions



Ordering Information

pressure range	absolute	gage	differential/gage
0 -5 InH2O	--	--	SDXL005D4

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