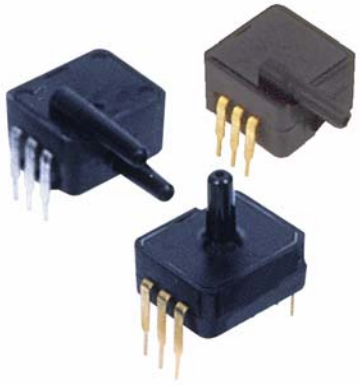
Honeywell

SDX Series

Plastic Silicon Pressure Sensors Low Cost, Temperature Compensated, DIP, 0 psi to 1 psi, 0 psi to 100 psi



DESCRIPTION

The SDX Series sensors 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 [32 °F to 122 °F] temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

Devices are available to measure absolute and gage pressures from 1 psi (SDX01) up to 100 psi (SDX100). The absolute devices have an internal vacuum reference and an output voltage proportional to absolute pressure. The SDX devices are available in standard commercial and prime grades (SDCXXXXX**-A**) to allow optimization of accuracy and cost in any given application.

The SDX devices feature an integrated circuit (IC) sensor element and laser trimmed thick film ceramic housed in a compact solvent resistant case. The package is a double-wide, dual-inline package (DIP). This is the same familiar package used by IC manufacturers except it is only 11,94 mm [0.470 in] long and has a pressure port(s). The PC board area used by each DIP is approximately 0.26 in^2. This extremely small size enables the use of multiple sensors in limited available space. The DIP provides excellent corrosion resistance and isolation to external package stress.

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.

The output of the bridge is ratiometric to the supply voltage and operation from any dc supply voltage up to 20 Vdc is acceptable.

FEATURES

- Low cost DIP
- Precision temperature compensation
- Calibrated zero and span
- Small size
- Low noise
- High impedance for low power applications
- Prime grade available (SDXxxxyy-A)

POTENTIAL APPLICATIONS

- Medical equipment
- Computer peripherals
- Pneumatic controls
- HVAC

SDX Series

Table 1. Pressure Range Specifications and Ordering Information

Catalog Listing, Pressure Connection, Pressure Type			Operating Pressure	Proof Pressure [2]	Full-Scale Span [1]		
Gage	Differential/Gage	Absolute			Min.	Typ.	Max.
SDX01G2	SDX01D4	-	0 psid to 1 psid	20 psid	17.37 mV	18.00 mV	18.18 mV
SDX01G2-A	SDX01D4-A	-			17.82 mV	18.00 mV	18.80 mV
SDX05G2	SDX05D4	-	0 psid to 5 psid	20 psid	57.90 mV	60.00 mV	62.10 mV
SDX05G2-A	SDX05D4-A	-			59.40 mV	60.00 mV	60.60 mV
SDX15G2	SDX15D4	-	0 psid to 15 psid	30 psid	86.85 mV	90.00 mV	93.15 mV
SDX15G2-A	SDX15D4-A	-			89.10 mV	90.00 mV	90.90 mV
-	-	SDX15A2	0 psia to 15 psia	30 psia	86.85 mV	90.00 mV	93.15 mV
-	-	SDX15A4			86.85 mV	90.00 mV	93.15 mV
-	-	SDX15A2-A			89.10 mV	90.00 mV	90.90 mV
-	-	SDX15A4-A			89.10 mV	90.00 mV	90.90 mV
SDX30G2	SDX30D4	-	0 psid to 30 psid	60 psid	86.85 mV	90.00 mV	93.15 mV
SDX30G2-A	SDX30D4-A	-			89.10 mV	90.00 mV	90.90 mV
-	-	SDX30A2	0 psia to 30 psia	60 psia	86.85 mV	90.00 mV	93.15 mV
-	-	SDX30A4			86.85 mV	90.00 mV	93.15 mV
-	-	SDX30A2-A			89.10 mV	90.00 mV	90.90 mV
-	-	SDX30A4-A			89.10 mV	90.00 mV	90.90 mV
SDX100G2	SDX100D4	-	0 psid to 100 psid	150 psid	96.50 mV	100.00 mV	103.5 mV
SDX100G2-A	SDX100D4-A	-			99.00 mV	100.00 mV	101.0 mV
-	-	SDX100A2	0 psia to 100 psia	150 psia	96.50 mV	100.00 mV	103.5 mV
-	-	SDX100A4			96.50 mV	100.00 mV	103.5 mV
-	-	SDX100A2-A			99.00 mV	100.00 mV	101.0 mV
-	-	SDX100A4-A			99.00 mV	100.00 mV	101.0 mV

Nomenclature	Pressure Connection (See Fig. 2)	Pressure Type	Grade
G2	A2/G2	gage	standard commercial
G2-A	A2/G2	gage	prime
D4	OK	differential	standard commercial
D4-A	OK	differential	prime
A2	A2/G2	absolute	standard commercial
A2-A	A2/G2	absolute	prime
A4	A4	absolute	standard commercial
A4-A	A4	absolute	prime

Table 2. General Specifications (Maximum)

Characteristic	Parameter
Supply voltage (V_S)	20 Vdc
Common mode pressure	150 psig
Lead soldering temperature (2 s to 4 s)	250 °C [482 °F]

Table 3. Environmental Specifications (Maximum)

Characteristic	Parameter
Compensated operating temperature	0 °C to 50 °C [32 °F to 122 °F]
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]
Storage temperature	-55 °C to 125 °C [-67 °F to 257 °F]
Humidity limits	0% RH to 100% RH

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Table 4. Performance Characteristics[3]

Characteristic	Min.	Typ.	Max.	Unit
Zero pressure offset	-1.0	0.0	+1.0	mV
Zero pressure offset (prime grade) [4]	-0.3	0.0	0.3	mV
Combined linearity and hysteresis [5]	–	±0.2	±1.0	% FSO
Combined linearity and hysteresis (prime grade) [5] [13]	–	±0.1	±0.25	% FSO
Temperature effect on span, 0 °C to 50 °C [32 °F to 122 °F] [6]	–	±0.4	±2.0	% FSO
Temperature effect on span, 0 °C to 50 °C [32 °F to 122 °F] [6] (prime grade)	–	±0.4	±1.0	% FSO
Temperature effect on offset 0, °C to 50 °C [32 °F to 122 °F] [6]	–	±0.2	±1.0	mV
Temperature effect on offset 0, °C to 50 °C [32 °F to 122 °F] [6] (prime grade)	–	±0.2	±0.5	mV
Repeatability [7]	–	±0.2	±0.5	% FSO
Input resistance [8]	–	4.0	–	kOhm
Output resistance [9]	–	4.0	–	kOhm
Common mode voltage [10]	1.5	3.0	5.0	Vdc
Response time [11]	–	100	–	µs
Long term stability of offset and span [12]	–	±0.1	–	mV

Notes:

1. Full-Scale Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. Full-Scale Span is ratiometric to the supply voltage.
2. Maximum pressure above which causes permanent sensor failure.
3. Reference conditions:
   - $^{T}_{A}$ = 25 °C (unless otherwise noted).
   - Supply V_S = 12 Vdc, Common Mode Line pressure = 0 psig.
   - Pressure applied to Port B. For absolute devices only, pressure is applied to Port A and the output polarity is reversed.
4. Maximum zero pressure offset for absolute devices is ±500 mV.
5. Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.
6. Maximum error band of the offset voltage and the error band of the span, relative to the 25 °C [77 °F] reading.
7. Maximum difference in output at any pressure within the operating pressure range and the temperature within 0 °C to 50 °C [32 °F to 122 °F] after:
   - 100 temperature cycles, 0 °C to 50 °C [32 °F to 122 °F].
   - 1.0 million pressure cycles, 0 psi to full-scale span.
8. Input resistance is the resistance between V_s and ground.
9. Output resistance is the resistance between the + and - outputs.
10. Common Mode voltage of the output arms for V_s=12 Vdc.
11. Response time for a 0 psi to Full-Scale Span pressure step change, 10% to 90% rise time.
12. Long term stability over a one-year period.
13. Maximum combined linearity and hysteresis for the SDX05 prime grade is ±0.5%.

Figure 1. Electrical Connections

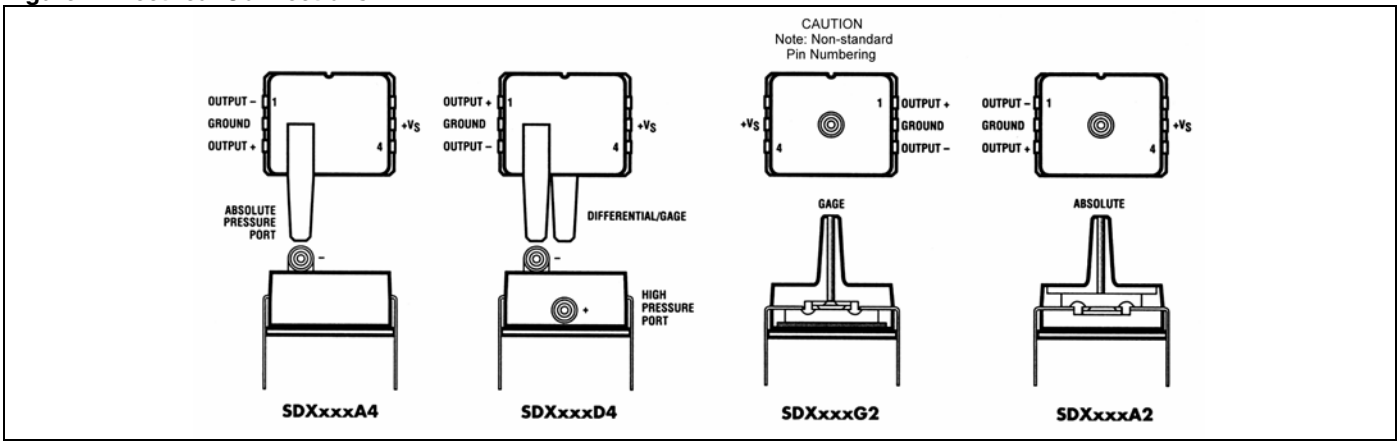
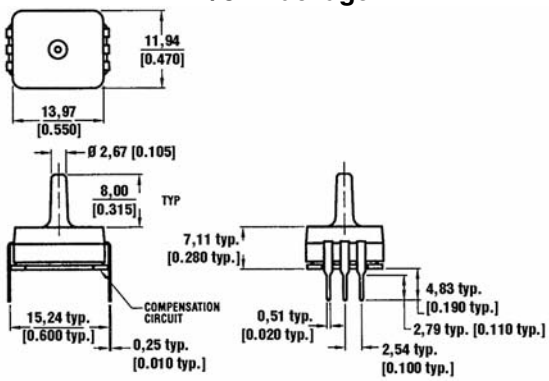
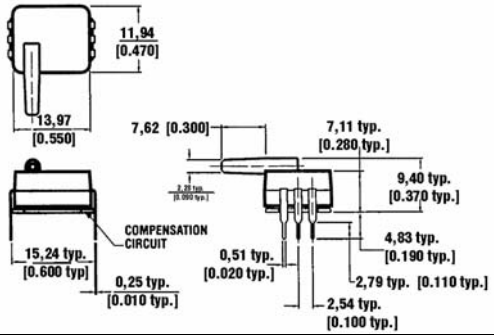


Figure 2. Mounting Dimensions (For Reference Only. mm/[in])

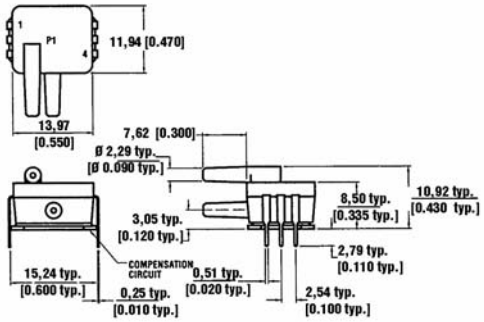
A2/G2 Package



A4 Package



D4 Package



⚠ WARNING

PERSONAL INJURY
DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.
Failure to comply with these instructions could result in death or serious injury.

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Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

⚠ WARNING

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- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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- Поставка образцов и прототипов;
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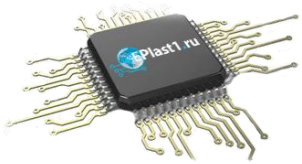

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