

## Silicon Pressure Sensors

### Ultra Low Pressure Sensing

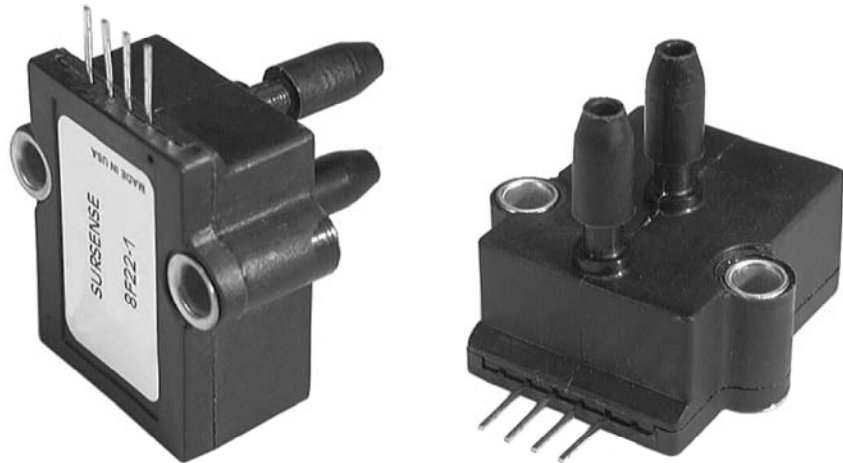
*DC Series*

#### FEATURES

- Ultra Low Pressure Sensing, down to 2.5 mBar
- ASIC Technology
- Available in Gage and Differential Pressure Ranges
- Available in Ratiometric and Regulated
- Temperature Compensated over 0 °C to 50°C [32 °F to 122 °F]
- Combined Linearity and Hysteresis error <  $\pm 0.25\%$  Span

#### TYPICAL APPLICATIONS

- Medical Instrumentation
- HVAC
- Environmental Controls
- Portable Monitors



#### GENERAL DESCRIPTION

The DC Series pressure sensors combine SURSENSE™ precision high sensitivity silicon sensing capabilities with the latest in Application Specific Integrated Circuitry ASIC technology to produce one of the most precise, reliable pressure sensors in the market. The SURSENSE technology provides Dynamic Self Compensation which substantially reduces offset errors due to changes in temperature, stability to warm up, long term instability and position sensitivity.

When operated with an unregulated 7.0 Vdc to 16.0 Vdc supply the DC sensors provides a ratiometric 0.50 to 4.50 Vdc output (4.0 Vdc span).

#### **⚠ 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.**

#### **⚠ WARNING**

##### **MISUSE OF DOCUMENTATION**

- 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.

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### ELECTRICAL SPECIFICATIONS

Ouput	Pressure Reference	Excitation (Vdc)	Offset <sup>(1)</sup> Voltage (Vdc)	Output Span (Vdc)	Supply Current (max.)	Output Source Current (max.)	Output Sink Current @ null (max.)
C4 Ratiometric	Gage	5 ±0.1	0.25	4	4 mA	2.0 mA	20 µA
	Differential	5 ±0.1	2.25	±2	4 mA	2.0 mA	20 µA
R4 Regulated	Gage	7 to 16	0.25	4	8 mA	2.0 mA	20 µA
	Differential	7 to 16	2.25	±2	8 mA	2.0 mA	20 µA
R5 Regulated	Gage	7 to 16	0.25	5	8 mA	2.0 mA	20 µA
	Differential	7 to 16	3.5	±2.5	8 mA	2.0 mA	20 µA

### PERFORMANCE SPECIFICATIONS<sup>(2)</sup>

Pressure Ranges	Overpressure	Offset Position Sensitivity	Total Error (Typical)	Total Error <sup>(3)</sup> (Max.)	Accuracy <sup>(4)</sup>
±0.5 in H <sub>2</sub> O	100 in H <sub>2</sub> O	±10 mV	±2.0 %	±3.0 %	±0.25 %
1 in H <sub>2</sub> O	100 in H <sub>2</sub> O	±10 mV	±2.0 %	±3.0 %	±0.25 %
2.5 mBar	250 mBar	±10 mV	±2.0 %	±3.0 %	±0.25 %
2 in H <sub>2</sub> O	100 in H <sub>2</sub> O	±10 mV	±1.5 %	±2.5 %	±0.25 %
5 mBar	250 mBar	±10 mV	±1.5 %	±2.5 %	±0.25 %
2.5 in H <sub>2</sub> O	100 in H <sub>2</sub> O	±10 mV	±1.5 %	±2.5 %	±0.25 %
5 in H <sub>2</sub> O	150 in H <sub>2</sub> O	±5 mV	±1.0 %	±2.0 %	±0.25 %
10 mBar	375 mBar	±5 mV	±1.0 %	±2.0 %	±0.25 %
10 in H <sub>2</sub> O	150 in H <sub>2</sub> O	±1 mV	±1.0 %	±2.0 %	±0.25 %
25 mBar	375 mBar	±1 mV	±1.0 %	±2.0 %	±0.25 %
20 in H <sub>2</sub> O	300 in H <sub>2</sub> O	±1 mV	±1.0 %	±2.0 %	±0.25 %
50 mBar	750 mBar	±1 mV	±1.0 %	±2.0 %	±0.25 %
30 in H <sub>2</sub> O	450 in H <sub>2</sub> O	±1 mV	±1.0 %	±2.0 %	±0.25 %
75 mBar	1125 mBar	±1 mV	±1.0 %	±2.0 %	±0.25 %
140 cm H <sub>2</sub> O	1125 cm H <sub>2</sub> O	±1 mV	±1.0 %	±2.0 %	±0.25 %

**Note 1:** Offset voltage and output span are nominal

**Note 2:** All specifications are relative to readings taken at 25 °C [77 °F] and at rated excitation unless otherwise specified.

**Note 3:** Percentage of Full Scale Includes: zero calibration, span calibration, temperature effect on zero and span, non-linearity, hysteresis, repeatability and stability over the compensated temperature range.

**Note 4:** Percentage of Best Fit Straight Line Includes: non-linearity, hysteresis, and repeatability.

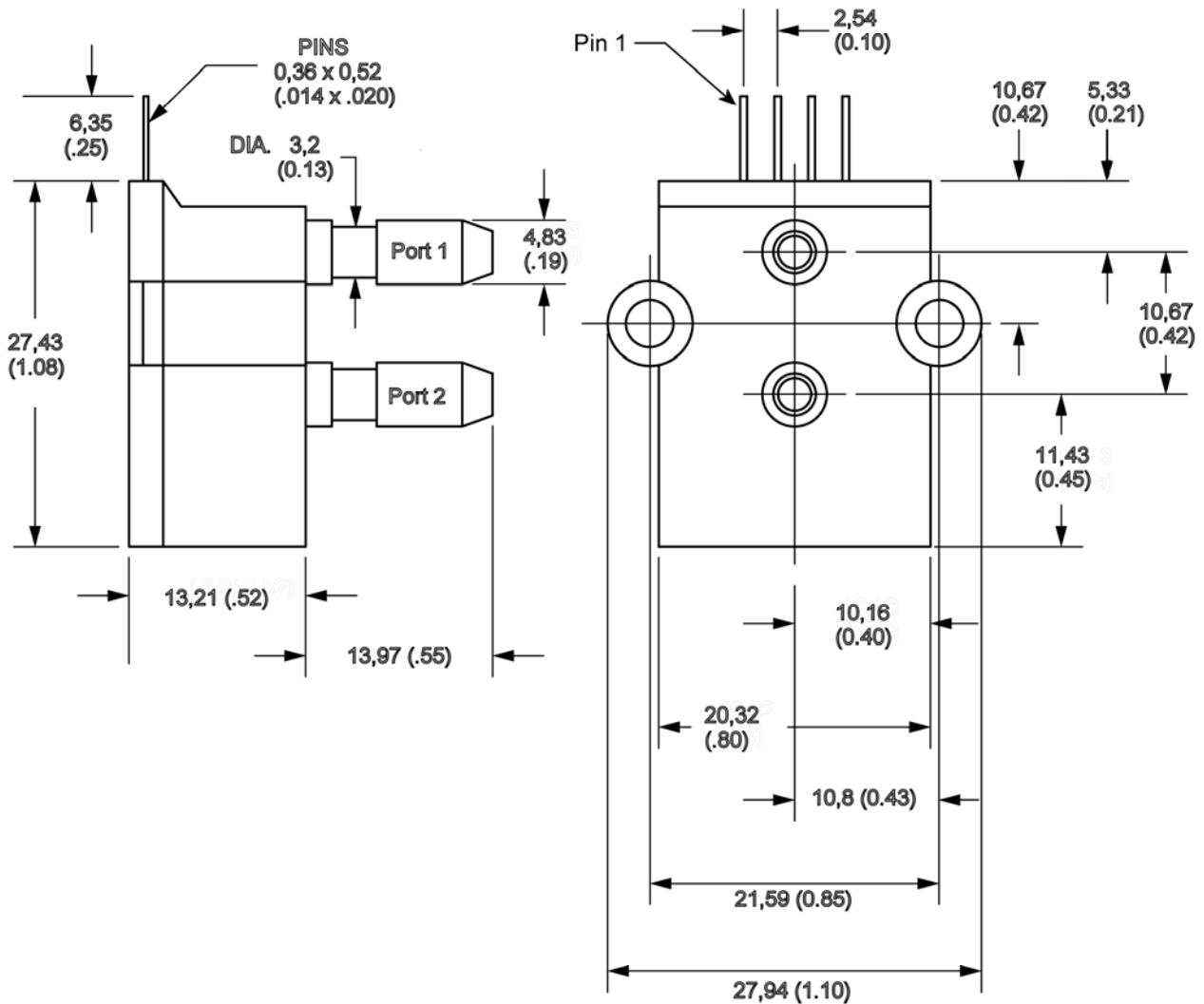
Material in Contact with Media	Silicon diaphragm, glass filled nylon, silicone, and alumina ceramic.
Compensated Temperature Range	0 °C to 50 °C [32 °F to 170 °F]
Operating Temperature Range	-25 °C to 85 °C [-13 °F to 185 °F]
Storage Temperature	-40 °C to 125 °C [-40 °F to 257 °F]

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PHYSICAL DIMENSIONS for reference only mm [In]



**Note:** For gage sensor apply pressure to port 2.

### DC Electrical Output Version

Pin Number	C4 0.25 Vdc to 4.25 Vdc Ratiometric	R4 0.25 Vdc to 4.25 Vdc Regulated	R5 1.0 Vdc to 6.0 Vdc Regulated
1	V Excitation	V Excitation	V Excitation
2	Common	Common	Common
3	V out	V out	V out
4	Not for Customer Use	Not for Customer Use	Not for Customer Use

