

Datasheet SDP2000-L

Differential Pressure Sensor with Analog Output

- Calibrated and temperature compensated
- Excellent repeatability, no drift



Product Summary

The SDP2000-L differential pressure sensor for air covers a measurement range of 3500 Pa (14 inch H₂O).

Mounted in a PPS housing the SDP2000-L differential pressure sensor features a unique dynamic range, zero offset and unsurpassed long term stability. This makes it an ideal fit for demanding yet cost sensitive OEM applications in HVAC and medical equipment.

The device is supplied with 5 V and provides a 0.25...4 V output. Although the output of the SDP2000-L differential pressure sensor is analog, the internal linearization and temperature compensation is performed digitally. This results in superior accuracy, outstanding resolution, and lowest temperature dependence.

The outstanding performance of the sensor is based on Sensirion's patented CMOSens® sensor technology, which combines the sensor element, signal processing and digital calibration on a small CMOS chip. The differential pressure is measured by a thermal sensor element using flow-through technology. The well-proven CMOS technology is perfectly suited for high-quality mass production and is the ideal choice for demanding and cost-sensitive OEM applications.

Benefits of Sensirion's CMOSens® Technology

- High reliability and long-term stability
- Best signal to noise ratio
- Industry-proven technology with a track record of more than 15 years
- Designed for mass production
- High process capability

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1. Sensor Performance

Table 1: Sensor specifications (at 23°C and P_{absolute} = 966 mbar, VDD = 5.0 V unless otherwise noted)

Parameter	SDP2000-L			Unit
	Min	Typ	Max	
Measurement range	-100		3500	Pa
	-0.4		14	Inch water
Calibrated range	0		3500	Pa
Power supply	4.75	5.00	5.25	V
Full scale output (100 kΩ load)		4.00		V
Zero Pressure Output		0.250		V
Accuracy		0.1	0.2	% FS ⁽¹⁾
		1	1.5	% m.v. ⁽²⁾
Repeatability		0.3	0.5	% m.v. ⁽²⁾
Offset stability		0	0.3	Pa / year
Additional error over temperature (T ≠ 23°C)		0	0	% FS/°C
		0.03	0.05	% m.v./°C
Resolution < 30% FS ⁽¹⁾	0.2	0.5	1	Pa
Resolution 30..70% FS ⁽¹⁾	1	2.5	8	Pa
Resolution > 70% FS ⁽¹⁾	8	11	14	Pa

⁽¹⁾ FS = full scale or span. For the SDP2000-L it is 3500 Pa

⁽²⁾ m.v. = measured value, i.e. reading

Table 2: Additional sensor specifications

Media	Air, N ₂ – for other gases contact Sensirion.
Operating Conditions: - Temperature - Humidity	-10 °C ... +60 °C / 14°F ... 140 °F non-condensing
Ambient storage conditions ⁽¹⁾	-40 °C ... +80 °C / -40°F ... 176 °F
Orientation sensitivity	below resolution
Response time	40 ms
Admissible overpressure (short term)	1 bar (14.5 PSI)
Burst Pressure Capability	2 bar (29 PSI)
Weight	14 g
Protection Class	IP 20
Wetted materials	Glass (silicon nitride, silicon oxide), Silicon, PPS (Polyphenylene Sulfide), PEEK (Polyetheretherketone), FR4, Silicone as static sealing, Epoxy, Gold
Gas flow through sensor	see Figure 4
REACH and RoHS	REACH and RoHS compliant

⁽¹⁾ For maximum 2 weeks