SENSIRION
THE SENSOR COMPANY

Datasheet SDP3x-Digital

Digital Differential Pressure Sensor

- Smallest size enables portable applications
- Reflow solderable – Pick & Place
- Excellent repeatability, no drift, no offset
- Extended feature set – smart averaging
- Calibrated and temperature compensated

Product Summary

The SDP3x sensor family is Sensirion's series of small differential pressure sensors designed for high-volume applications where size is a key requirement. It builds on the next generation CMOSens® sensor chip that is at the heart of Sensirion's new differential pressure and flow sensing platform.
The digital SDP3x sensor features fast measurement speed, excellent accuracy and long-term stability and has no zero-point drift. Furthermore, it is reflow solderable and provides extended functionality, such as smart averaging, multiple temperature compensation modes, configurable I^2C address and interrupts.

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

Content

1. Sensor Performance 2
2. Specifications 3
3. Pin Assignment 4
4. Measurement Modes 5
5. Digital Interface Description 6
6. Package Outline 11
7. Soldering 12
8. Shipping Package 13
9. Ordering Information 13
Revision History 13
Important Notices 14
Headquarters and Subsidiaries 14

1. Sensor Performance

1.1 Differential Pressure Specification[1]

Parameter	SDP31	SDP32
Measurement range [2]	- 500 to 500 Pa (- 2 to 2 inH_2O)	- 125 to 125 Pa (-0.5 to 0.5 inH_2O)
Zero point accuracy [3,4]	0.1 Pa	0.08 Pa
Span accuracy [3,4]	3% of reading	3% of reading
Zero point repeatability [4]	0.03 Pa	0.025 Pa
Span repeatability [4]	0.5% of reading	0.5% of reading
Span shift due to temperature variation	< 0.5% of reading per 10°C	< 0.5% of reading per 10°C
Offset stability	< 0.01 Pa/year	< 0.01 Pa/year
Flow step response time (τ_{63})	< 3ms	
Resolution	16 bit	
Calibrated for	Air, N_2	
Media compatibility	Air, N_2, O_2, non-condensing	
Calibrated temperature range	-40 °C to +85 °C	

1.2 Temperature Specification[5]

Parameter	Value
Measurement range	-40 °C to +85 °C
Resolution	16 bit
Accuracy	2 °C (-10 °C to +60 °C) 3 °C (-40 °C to +85 °C)
Repeatability	0.1°C

[1] Unless otherwise noted, all sensor specifications are valid at 25°C with VDD = 3.3 V and absolute pressure = 966 mbar.

[2] For other pressure ranges contact Sensirion

[3] Includes repeatability

[4] Total accuracy/repeatability is a sum of zero-point and span accuracy/repeatability.

[5] The measured temperature is the temperature of the bulk silicon in the sensor. This temperature value is not only depending on the gas temperature, but also on the sensor's surroundings. Using the signal to measure solely the gas temperature will need special precautions, such as isolating the sensor from external temperature influences.