



# Differential Pressure Sensors

Experts for Smart Sensor Solutions

**SENSIRION**  
THE SENSOR COMPANY

# High Performance Differential Pressure Sensors for Gases

With our long history of designing differential pressure sensor solutions for medical technology, HVAC applications, and industrial automation, we are your ideal partner to support you in the development of new products. Sensirion's differential pressure sensors are optimal for diverse and demanding applications.

- Measurement of differential pressures down to 0.1 Pa
- Small size, fast response time and reliability
- Zero offset, no drift
- Interchangeability
- Mounting position independence

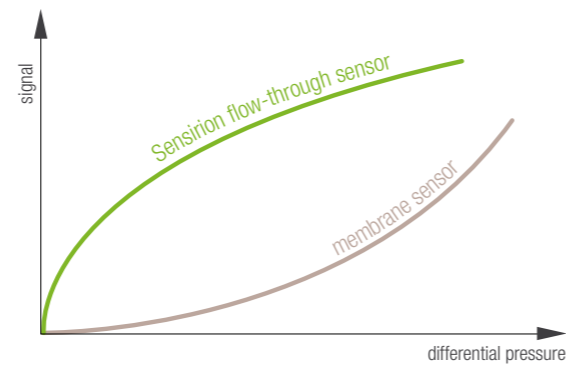
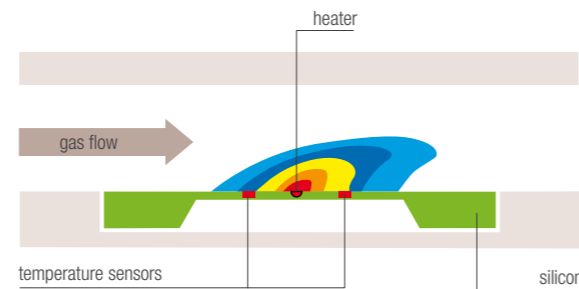
For more information, please visit: [www.sensirion.com/differentialpressure](http://www.sensirion.com/differentialpressure)

## UNIQUE PROPERTIES FOR MASS FLOW MEASUREMENT

Sensirion's differential pressure sensors for air and non-corrosive gases enable ultra-low differential pressure measurements. Providing fast results, the sensors are drift-free and do not exhibit any position sensitivity. In addition, these digital and analog differential pressure sensors are unrivalled in size and reliability.

Thanks to their thermal flow-through operating principle, Sensirion's CMOSens® differential pressure sensors outperform traditional piezoresistive membrane sensors in terms of sensitivity at low differential pressure, offset drift, and hysteresis.

The SDP1000 and SDP600 Series sensors measure the mass flow by utilizing the thermal flow-through principle. These differential pressure sensors are therefore a best choice for applications requiring measurement of standard volume flow or mass flow (e.g. flow measurement with an orifice or pitot tube). Traditional membrane sensors require compensation for air density in order to determine mass flow. With Sensirion's SDP Series, conversion of the sensor output into true mass flow is independent of air density and temperature.



# Various Applications



## MEDICAL

- Intensive care ventilation, respiratory devices
- High-speed measurements
- Robust and shock-resistant
- Calibrated and temperature compensated



## BURNER CONTROL

- Heating systems, condensing boilers, pellet stoves, fuel cells
- Precise mass air flow control
- Altitude-independent reading
- Fault/error control versions SDP62x/63x



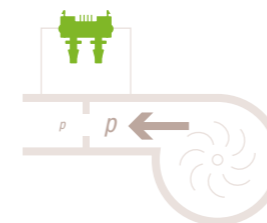
## VAV AND HEAT RECOVERY

- Measuring air flow and total energy content for heating and energy optimization
- Zero offset, no drift (no zero point calibration needed)
- Durable and robust



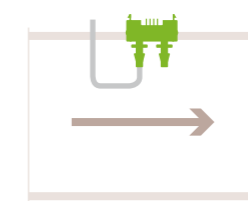
## VENTILATOR AND FAN CONTROL

- Large air flow measurements with just one sensor
- Unique accuracy and reproducibility
- No restrictions with respect to the mounting orientation



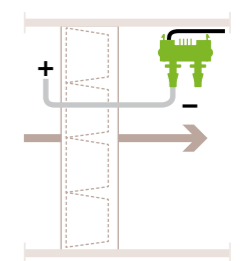
## AIR PRESSURE CONTROL

- Air ducts and rooms, clean room systems
- High repeatability
- Best sensitivity at lowest reading (<5 Pa)



## FILTER MONITORING

- Air intake filters, clean air filters
- Sensitive, accurate and reliable filter monitoring
- Altitude-independent reading
- Ask Sensirion for smart filter monitoring solutions



## Selection of Sensirion Differential Pressure Sensors



# Medical



### SDP600 SERIES

The SDP600 Series is characterized by zero drift and excellent long-term stability. The digital and fully calibrated sensors enable measurements with very high sensitivity and outstanding accuracy. Due to the exceptional integration level and clever packaging, the sensors are small, fast, and reliable. The SDP600 is designed for direct threaded connection to a pressure manifold with O-ring sealing, while the SDP610 is designed for tube connection. Their excellent repeatability and interchangeability at extremely low differential pressures make the SDP600 Series the best choice for filter monitoring, VAV, or medical respiratory

applications. In addition to the SDP600/610 standard sensors, Sensirion offers several special versions:

- Low pressure versions for accurate measurements of ultra-low differential pressures.
- Fault/error control versions.
- Low power versions for battery-operated applications.
- Special calibration to measure mass flow in bypass configuration.
- Lower cost versions with unidirectional differential pressure measurement and 4.5% accuracy of measured value.

### SDP1000 SERIES

The SDP1000 Series enables precise measurement of differential pressures with an analog 0 – 4 V output. The fully calibrated and temperature compensated sensors are intended for demanding applications and feature highest accuracy. The SDP1108-R with its square root extracted output is designed particularly for medical applications and provides an outstanding dynamic range and ultra-fast response time.

### EK-P3 FOR EASY AND FAST TESTING

The EK-P3 evaluation kit enables an easy and cost-efficient evaluation of Sensirion's digital differential pressure sensors. The evaluation kit consists of a USB Stick with an adapter cable and a SDP610 differential pressure sensor. The software can be downloaded from our website and is easy to install on a computer. No further calibration is necessary. It has the capability for easy data-logging and data may be exported to Excel format.

# Filter Monitoring

# HVAC

Output	SDP600 Series														SDP1000				SDP2000	SDP1108	SDP2108				
	I <sup>2</sup> C														Analog output 0.25 to 4.0 V										
Version	SDP600 500Pa	SDP610 500Pa	SDP600 125Pa	SDP610 125Pa	SDP600 25Pa	SDP610 25Pa	SDP601	SDP611	SDP500	SDP510	SDP620	SDP630	SDP621	SDP631	SDP606	SDP616	-L	-R	-L05	-L025	-L	-R	-R		
Key feature			Low differential pressure		Lowest differential pressure		For mass flow measurement in bypass		Low cost		Fault/error control		Fault/error control, for mass flow measurement		Ultra-low power measurement				Excellent repeatability at lowest pressure differences			Fast, high sensitivity at zero, for medical applications			
Tubing connector	Manifold	Ports	Manifold	Ports	Manifold	Ports	Manifold	Ports	Manifold	Ports	Manifold	Ports	Manifold	Ports	Manifold	Ports	Ports 4 mm OD								
Pressure range	500 Pa 2" H <sub>2</sub> O		125 Pa 0.5" H <sub>2</sub> O		25 Pa 0.1" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		500 Pa 2" H <sub>2</sub> O		125 Pa 0.5" H <sub>2</sub> O		62 Pa 0.25" H <sub>2</sub> O		3,500 Pa 14" H <sub>2</sub> O	500 Pa 2" H <sub>2</sub> O	3,500 Pa 14" H <sub>2</sub> O
Bidirectional	✓		✓		✓		✓				✓		✓		✓								✓		
Mass flow t-comp.																									
Ultra low power																✓									
Fault/error control								✓			✓		✓												
Linear	✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		
Root-square																			✓				✓		✓
Accuracy of measured value	3%		3%		3%		3%		4.5%		3%		3%		3%		1.5%		1.5%		2%		2%		2%
Lowest detectable pressure	<0.05 Pa		<0.02 Pa		<0.01 Pa		<0.05 Pa		<0.2 Pa		<0.05 Pa		<0.05 Pa		<0.1 Pa		<0.1 Pa		<0.02 Pa		<0.02 Pa		<0.02 Pa		<0.1 Pa
Response time	4.6 ms		4.6 ms		4.6 ms		4.6 ms		4.6 ms		4.6 ms		4.6 ms		70 ms		40 ms		40 ms		40 ms		40 ms		8 ms
Nominal power supply	3.3 V														3 V		5 V								
Electric connector	Pin, 2 mm pitch														Pin, 2.54 mm pitch										
Calibrated for															Air, N <sub>2</sub>										
Gas compatibility															Air, inert gases										
Max overpressure															1 bar										

# Sensing. Anytime. Anywhere.

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