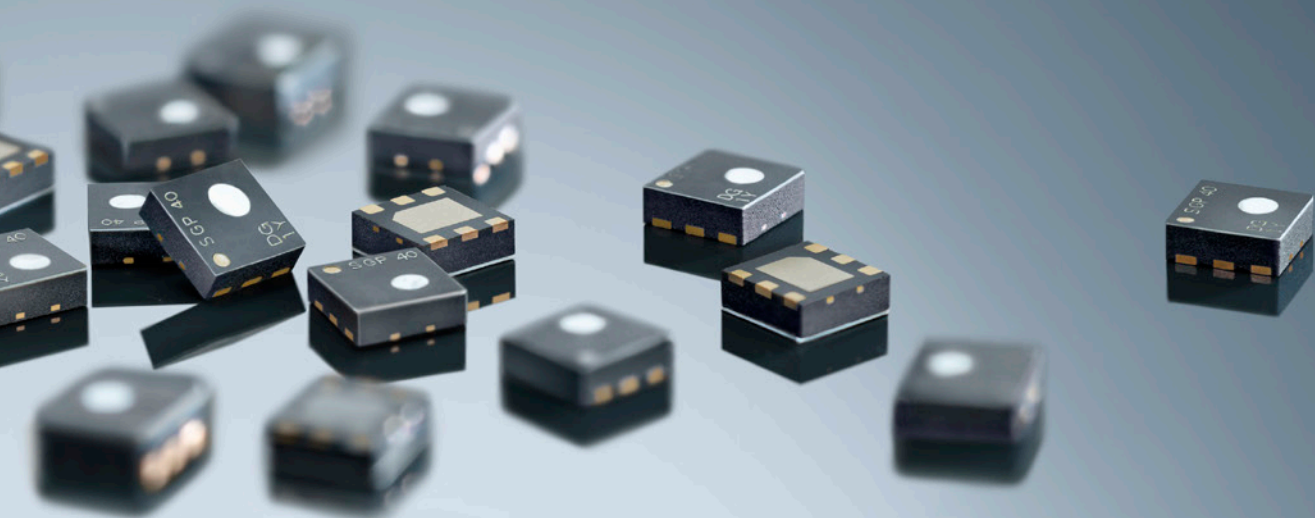


Gas sensors
Reliable VOC and NOx
monitoring



Metal oxide based gas sensors

Our SGP4x sensors are metal oxide based (MOX) and integrate CMOSens® sensor systems onto a single chip. A MOX sensor is a heated surface of a metal oxide that changes its electrical resistance depending on the oxygen content on its surface. Oxidizing gases like NOx (providing more oxygen than ambient air) increase the resistance, whereas reducing gases like VOCs (consuming oxygen by being combusted on the metal oxide surface) reduce the resistance.

VOC index algorithm

The VOC index is an adaptive algorithm providing reliable monitoring of VOC concentrations in indoor air environments. By processing the raw signal from the SGP4x's VOC pixel through an external microcontroller, our algorithm creates an index reflecting the current VOC levels relative to recent measurements. It indicates to what extent the indoor air quality has deteriorated or improved compared to the sensor's average VOC environment.

This information can be used to e.g., adjust the fan speed of an air treatment device gradually or to inform users about their daily activities' impact on air quality.

SEK-SVM4x Evaluation Kit

The SEK-SVM4x Evaluation Kit is a single product designed for easy and cost-efficient evaluation of both our SGP40 VOC and SGP41 VOC+NOx sensors. With plug-and-play hardware and the ControlCenter viewer software, the SEK offers a straightforward and efficient testing process. It provides an essential tool for assessing the sensors' performance.

- Quick, easy, cost-efficient sensor evaluation
- Kit content: SVM4x sensor module (SGP41, SHT40 and a micro-controller), UART-USB cable, 6-pin jumper wire cable
- VOC and NOx index, relative humidity and temperature outputs
- ControlCenter: displays and logs signals for multiple sensors on one PC



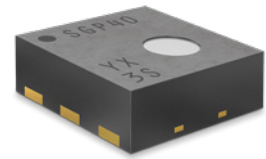
Learn more



about the
SEK-SVM4x

SGP40

SGP40 is a digital VOC sensor designed for easy integration into air treatment devices and air quality monitors. It offers a complete sensor system on a single chip and features a digital I²C interface, a temperature-controlled micro-hotplate and a humidity-compensated indoor air quality signal. In combination with our VOC index algorithm, the sensor signal can be used to directly evaluate indoor air quality.



Features	Benefits
Long lifetime of >10 years thanks to siloxane-resistance (MOXSens® Technology)	Reliable sensor hardware
VOC index driver	No signal processing programming required
On-chip humidity compensation	Optimal performance in various environments
Low heat emission	Enhanced precision of RH/T readings, less backgrounds
Small footprint of 2.44 × 2.44 × 0.85mm ³	Facilitates space-efficient design-in
High sensitivity to almost all VOCs	Broadband sensor that reacts well to typical VOCs
Supply voltage range of 1.7–3.6 V	Operable in wide variety of applications
Digital I ² C interface	Straight-forward design-in and interfacing

Applications

- Air purifiers
- Indoor air quality monitors
- Kitchen hoods
- Smart home devices
- Thermostats
- Demand-controlled ventilation

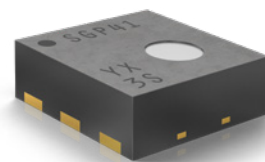
Learn more



about the
SGP40

SGP41

SGP41 is a highly sensitive VOC and NOx sensor designed as digital smart switch and regulation unit for air treatment devices and air quality monitors. It offers a solution for two complete sensors on a single chip facilitating design-in and saving design costs. The two sensor signals processed by our gas index algorithm can be used to automatically trigger the removal of indoor air gas pollutants.



Features	Benefits
Two sensors on a single chip	Cost reduction and simplified design-in
Long lifetime of >10 years thanks to siloxane-resistance (MOXSens® Technology)	Reliable sensor hardware
Gas index driver	No signal processing programming required
On-chip humidity compensation	Optimal performance in various environments
Low heat emission	Enhanced precision of RH/T readings, less backgrounds
Small footprint of 2.44 × 2.44 × 0.85 mm ³	Facilitates space-efficient design-in
High sensitivity to almost all VOCs	Broadband sensor that reacts well to typical VOCs
Supply voltage range of 1.7–3.6 V	Operable in wide variety of applications
Digital I ² C interface	Straight-forward design-in and interfacing

Applications

- Air purifiers
- Indoor air quality monitors
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- Demand-controlled ventilation

Learn more



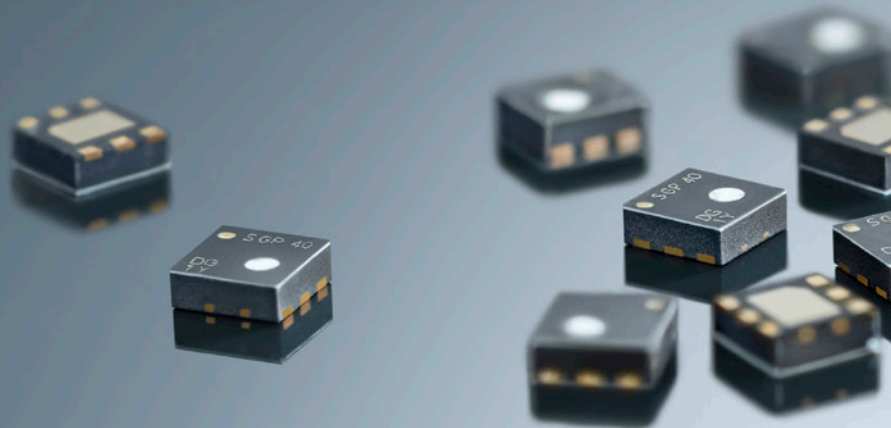
about the
SGP41

Gas sensing specifications	VOC	NOx
Applicable product	SGP40, SGP41	SGP41
Algorithm output	1-500 VOC index points ¹	1-500 NOx index points ¹
Sensor raw output	16-bit ticks ²	
Measurement range	0-1,000,000 ppm of ethanol equivalents	0-10,000 ppm of NO ₂
Device-to-device variation	<± 15 VOC index points or % m.v. (whichever is larger)	<± 50 NOx index points or % m.v. (whichever is larger)
Limit of detection	<50 ppb of ethanol equivalents or <10% of concentration setpoint (whichever is larger)	<20 ppb of NO ₂ or <10% of concentration setpoint (whichever is larger)
Response time (tau 63%)	<10 s	<250 s
Switch-on time	<60 s	

Electrical specifications		
Supply voltage range	1.7-3.6 V	
Idle current	34 µA	
Current consumption during operation at 1.8 V at 3.3 V	3.5 mA 2.6 mA	3.0 mA 3.0 mA
Interface	I ² C	
Size	2.44 × 2.44 × 0.85 mm ³	
Compliance with IAQ standards	RESET, WELL	

¹ Sensirion's gas index algorithm processes the raw signals externally into read-to-use air quality signals.

² The raw signal is proportional to the logarithm of MOX resistance.



Technology at heart,
future in mind.