PRODUCT DETAILS

This is a digital gas sensor that uses **Sensirion's SGP41** with advanced **CMOSens technology** to measure **VOCs** and **NOx** in indoor air. It is highly stable and durable, making it suitable for continuous monitoring over extended periods. Its compact size and flexible power supply options make it easy to use in various applications such as air purifiers and demand-controlled ventilation systems.

Features

- **Digital Gas Sensor:** Measure the concentration of VOCs and NOx in indoor air, providing accurate and reliable readings.
- **CMOSens® Technology:** Ensures user-friendliness and ease of use by integrating a complete sensor system on a single chip.
- **Long-term Stability:** It boasts exceptional long-term stability and durability, making it suitable for continuous monitoring of indoor air quality over extended periods.
- **Compact and Flexible:** It has a 4-pin Grove interface for easy microcontroller connection and supports both 3.3V and 5V power supply, making it versatile for various applications.
- **Reliable and Reproducible:** Sensirion's state-of-the-art production process guarantees high reproducibility and reliability of the SGP41 module.

Description

Indoor air pollution can have a significant impact on our health, and it's important to be aware of the harmful pollutants that can be present in the air we breathe. One of the most concerning pollutants are **volatile organic compounds (VOCs)** and **nitrogen oxides (NOx)**. These gases can come from a variety of sources, such as cleaning products, paints, and cooking fumes, and can accumulate to dangerous levels in poorly ventilated indoor spaces.

The Grove - Smart Air Quality Sensor is an essential tool for anyone who wants to monitor and improve their indoor air quality. It is a fully integrated **MOX** gas sensor that is designed as a digital smart switch and regulation unit. It measures VOCs and NOx in indoor air for air treatment devices such as air purifiers. It utilizes **Sensirion's SGP41**, which processes two sensor signals using a powerful **Gas Index Algorithm**. The signals can directly trigger air treatment devices to remove indoor air gas pollutants without the need for user-device interaction.

This sensor solution is ideal for continuously monitoring VOC and NOx levels, including potentially harmful events that are imperceptible to humans. Additionally, the SGP41 signals can automatically control air treatment devices, **saving energy** by turning them off once VOC and/or NOx levels have been addressed.

By using this sensor, you can take proactive steps to reduce your exposure to these harmful gases and protect your health. Especially for NOx indoor gas pollutants, which may cause or facilitate various diseases mainly related to respiratory issues when exposed over a prolonged time.

We have developed more than 400 Grove modules, covering a wide range of applications that can fulfill various needs. Click to explore the Grove Sensor family and get started to Grove your Idea. For all Grove users (especially beginners), we provide you with guidance PDF documents. Please download and read through Preface - Getting Started and Introduction to Grove before your use of the product.
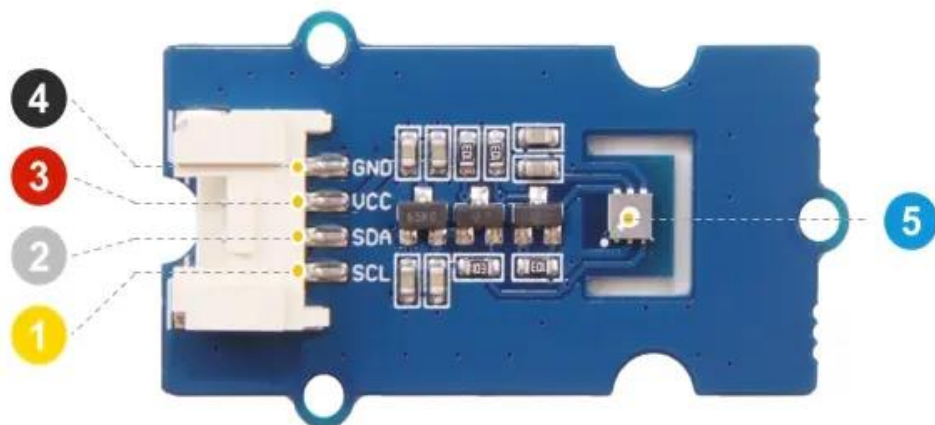
Applications

- Indoor air quality monitoring
- Air purifiers
- Demand-controlled ventilation systems
- Smart homes
- Industrial applications
- Environmental monitoring

Specifications

Feature	Specification
Sensing technology	MOx-based gas sensor for air quality applications
Measurement range(TVOC)	0-1000 ppm
Power consumption	Low power consumption of 3.0 mA at 3.3 V
Operating temperature	-40°C to +85°C
On-chip humidity compensation	0% to 100% RH (non-condensing)
Response time	<10 seconds for VOCs

	<60 seconds for NOx
Accuracy	±15% for VOCs and ±50 ppb for NOx (at standard conditions)
Interface	I2C interface with digital output signals
Dimension	135mm x85mm x10mm

Pinout

④ GND: connect this module to the system GND
③ VCC: you can use 5V or 3.3V for this module
② SDA: I²C serial data
① SCL: I²C serial clock

⑤ SGP41 module

Partlist

Grove -Smart Air Quality Sensor-SGP41	x1
Grove Cable	x1

ECCN/HTS

HSCODE	9027900000
USHSCODE	9027102000
UPC	
EUHSCODE	9027109000

COO	CHINA
CE	1
EU DoC	1
RoHS	1
UK DoC	1