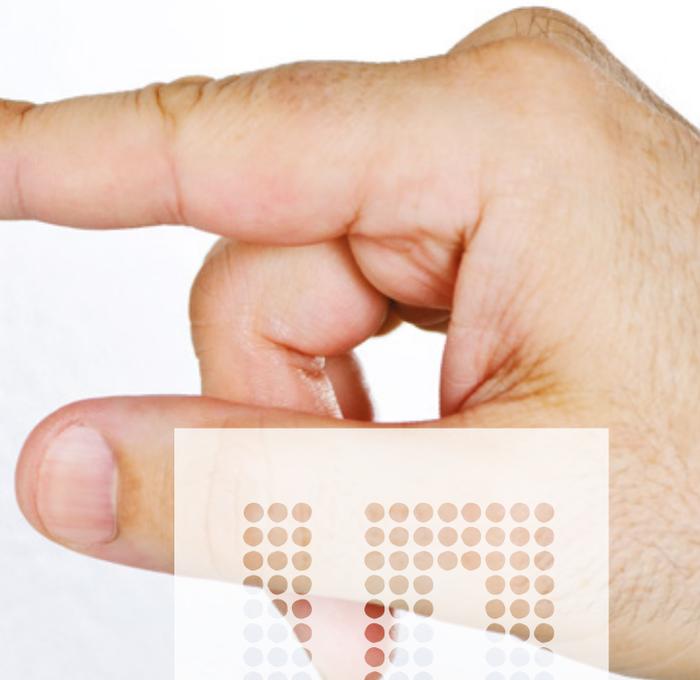


# iAQ-core

[www.ams.com/Air-Quality-Sensors](http://www.ams.com/Air-Quality-Sensors)



## **iAQ-core – Indoor Air Quality Module**

- Broad detection of reducing gases associated with bad air quality
- Close correlation with real CO<sub>2</sub> for events dominated by human presence
- Help to maintain good air quality at minimum energy consumption
- Superior detection at smallest footprint

**We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.**

## General Description

Indoor air quality has traditionally been a measure of temperature, humidity and carbon dioxide (CO<sub>2</sub>) levels. Most consumers, however, evaluate air quality by the amount of volatile organic compounds (VOCs), such as smoke, cooking odors, bio-effluence, outdoor pollutants or from human activities. While temperature and humidity are easy to measure, sensors for measuring CO<sub>2</sub> (IR absorption) can be expensive and VOCs have been difficult to detect – until now.

The ams iAQ-core Indoor Air Quality Module is a low-cost, ultracompact solution for detecting poor air quality. It is equipped with an MOS sensor for the detection of a broad range of reducing gases such as CO and VOCs. A change of resistance in the presence of these gases generates a signal that is translated into parts per million (ppm) CO<sub>2</sub> equivalent or parts per billion (ppb) TVOC equivalent units. When defined threshold

limits are exceeded, the module signals the system to initiate activities such as increasing ventilation, releasing fragrance, providing a message to open a window, switching on an air cleaner, etc. When VOC levels are minimized, the module instructs the system to return to standby, thereby saving energy, lowering operating costs and maintaining a healthy environment.

In any demand-controlled ventilation/actuation environment where air quality is important, including commercial and residential facilities (offices, classrooms, kitchens, bathrooms, living and bedrooms etc.) the iAQ-core Indoor Air Quality Module performs accurately and reliably. Plus, the module's small size opens up a wide variety of new applications where space is at a premium.

Sensor		
Sensing technology	MEMS metal oxide semiconductor	
Sensing range	450–2000 ppm CO <sub>2</sub> equivalents (relative) 125–600 ppb TVOC equivalents (relative) Values above the defined sensing range are provided as well.	
Module	Automatic baseline correction Continuous and pulsed operation mode	
Electrical	iAQ-core C (Continuous Operation)	iAQ-core P (Pulsed Operation)
Power supply	3.3V, ±0.1, max. 20 mV ripple	3.3V, ±0.1, max. 20 mV ripple
Power consumption	67 mW	9 mW
Output signal options	I <sup>2</sup> C	I <sup>2</sup> C
First functional reading after startup	5 minutes	5 minutes
Measurement interval	1 sec.	11 sec.
Environmental (Continuous and Pulsed)		
Temperature range:		
Operation	0 to 50°C	
Storage	-25 to 50°C	
Humidity range	5 to 95% r.h., non-condensing	
Mechanical (Continuous and Pulsed)		
Dimensions (approximate values):		
PCB	15.24 x 17.78 mm	
Height PCB	1.7 mm	
Lid	11.2 x 17.78 mm	
Total Height	4.3 mm	
Sensor position (approximate values)	7.6 x 12.3 mm	
Diameter	9 mm	
Weight	Approximately 1g	
IP-Class	00	
Connector	Card edge (cut via)	

### Benefits

- Output of ppm CO<sub>2</sub> eq. + ppb TVOC eq.
- High sensitivity and fast response
- Micro size for convenient installation
- Low power consumption

### Applications

- Smart Home
- Internet of Things
- HVAC
- Thermostats etc.

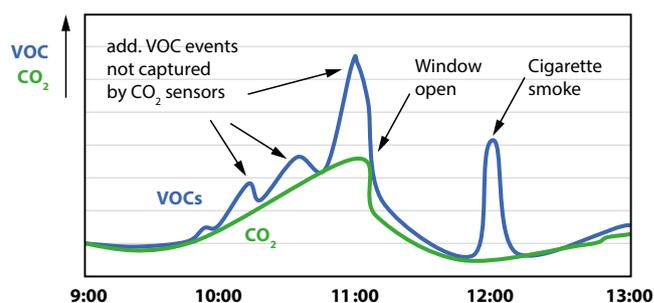
### Substances Detected

Broad detection of reducing gases associated with bad air quality including CO and VOCs (volatile organic compounds) such as alcohols, aldehydes, ketones, organic acids, amines, aliphatic and aromatic hydrocarbons, etc.

### Package



### Air Quality Measurement in Meeting Room



Traditional NDIR carbon dioxide sensors do not respond to changes in air quality caused by odors, cigarette smoke, and other volatile organic compounds.

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