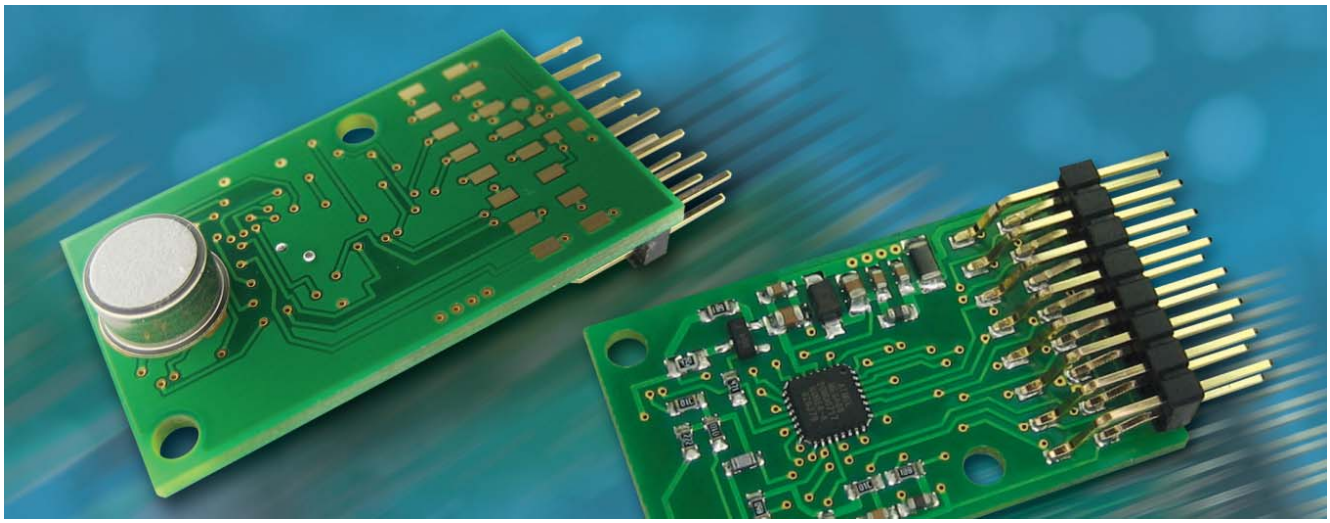
TB500 Indoor Air Quality Module



TB500

Air quality prediction beyond CO2

The climate control industry views indoor air quality as a measure of temperature, humidity and carbon dioxide (CO2) levels. Most consumers, however, evaluate air quality by the amount of volatile organic compounds (VOCs), such as smoke, cooking odors, bio-effluence and outdoor pollutants. While temperature and humidity are easy to measure, sensors for measuring CO2 (IR absorption) can be expensive and VOCs difficult to detect – until now.

Superior detection with MOS technology

The TB500 Indoor Air Quality Module is a sensitive, low-cost solution for detecting poor air quality. This module uses micro-machined metal oxide semiconductor (MOS) technology to detect a broad range of VOCs while correlating directly with CO2 levels in the room.

Energy savings

The TB500 is equipped with a MOS sensor element 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 linked to specific gas concentration ranges and is translated into parts per million (ppm) VOC + CO2 equivalent units. When defined threshold limits are exceeded, the module alerts the climate control system to increase ventilation. When VOC levels are minimized, the module instructs the system to decrease ventilation, thereby saving energy and lowering building operating costs.

Air quality as close to human perception as possible

In any demand-controlled ventilation environment where air quality is important, including large commercial facilities, offices, classrooms, kitchens and bathrooms, the TB500 Indoor Air Quality Module performs accurately and reliably. Plus, the module's small size and low power consumption facilitate installation in a variety of applications.

Key Benefits

- Direct, reliable correlation to CO2 levels
- High sensitivity and fast response
- Small size for convenient installation
- Low power consumption

Substances Detected

- Alcohols
- Aldehydes
- Aliphatic hydrocarbons
- Amines
- Aromatic hydrocarbons
- CO, CH4, LPG
- Ketones
- Organic acids

TB500 Indoor Air Quality Module

Features

Sensor

Sensing technology	MEMS metal oxide semiconductor
Sensing range	450-2000ppm CO2 equivalents
Module	Automatic baseline correction
	Flexible communications

Electrical

Power supply	5.0 ± 0.25V, max. 20 mV ripple
Power consumption	30mA
Output signal options	TTL
	RS232 (TTL level)
	I^2C
	0-5V
	PWM
First functional reading after startup	15 minutes

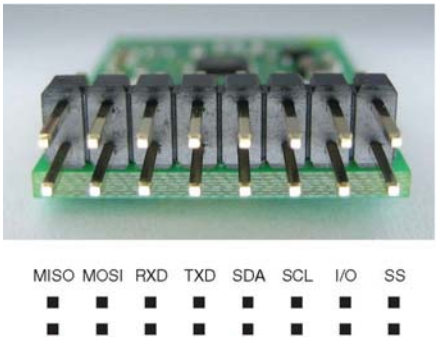
Environmental

Temperature range:	
Operation	0 to 50°C
Storage	-25 to 50°C
Humidity range	5 to 95%r.h., non-condensing

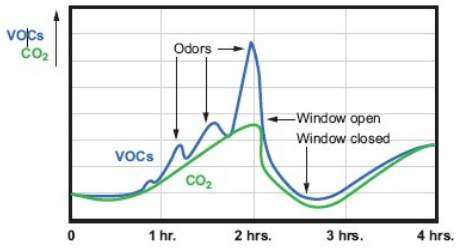
Mechanical

PCB Dimensions (approximate)	22 x 38 mm
Weight (approximate)	10 grams
Connector	2x8-pin male header, 2.54 mm pitch

PCB / Connector Pin Out



Comparison of Air Quality Measurement in Meeting Room



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