

CO₂ Sensor



Paragon has developed a CO₂ sensor for optimum interior air quality. The measured data can be used to recognise both increased concentrations of CO₂ in vehicle interiors, and also for safety purposes with CO₂-driven air conditioning systems.

Due to the optimisation of the air exchange rates in combination with an AQS, the air conditioning system can be operated more efficiently, and the vehicle's CO₂ emissions can be reduced.

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The air that an individual breathes out contains approx. 40,000 ppm (4 vol. %) CO₂. Measurements by paragon that were carried out in an SUV showed that when the air circulation function was activated, the CO₂ level in a vehicle increases very quickly. If the car is carrying two people, after just a few minutes, concentrations of over 2,000 ppm (0.2 vol. %) are reached.

In standby operation with 2 measurements per minute, the average power consumption of the sensor is below 100 µA. This means that the paragon CO₂ sensor satisfies the quiescent current requirements specified by automotive manufacturers. It is therefore especially suitable for monitoring concentrations of CO₂ in the interiors of parked vehicles.

In addition to the safe recognition of CO₂ leakages in the air conditioning system, thanks to its superb sensitivity, the sensor is also able to recognise young children who are asleep in a parked vehicle.

To be able to fulfill the availability requirements concerning these safety-relevant applications, the CO₂ sensor contains redundant components which ensure the high availability and the full self-diagnosis of the system.

The lifespan of the sensor totals 15 years without servicing.

Technical specifications

Characteristic value	Value	Comment
Measured range	0 to 70,000 ppm	
Operating voltage	9V to 16V	Functional state A
Power consumption	active ≤ 20mA standby ≤ 100µA	average average
Interface	LIN 2.1	others are possible
Dimensions	53 mm x 39 mm x 21 mm	L x W x H (not including screw tabs)
Weight	< 40 g	
Attachment	2 screw tabs	
Other	Pressure compensated	-500m to +6000m
Operating temperature	-40°C to +90°C	
Storage temperature	-40°C to +110°C	
Protection class	IP5K4	