Automotive CO2 Sensor

The MAXMAC Automotive CO2 Sensor is a carbon dioxide sensing module developed for intelligent healthy cabin systems. It monitors in-cabin CO2 concentration in real time and provides reliable data for automatic fresh air ventilation, fresh/recirculated air control, fatigue-driving risk reminders, and cabin comfort management.

Based on NDIR non-dispersive infrared sensing technology, the sensor supports 9-16V automotive power supply, a 0-50000 ppm measurement range, and operation from -40°C to 85°C. It is suitable for passenger cars, new energy vehicles, commercial vehicles, and other demanding automotive environments.

With a reliable structure, fast response, low power consumption, and 15-year service life, the sensor helps vehicles build closed-loop air quality control. It improves safety and comfort in crowded cabins, long-distance driving, parking rest, and child or pet occupancy scenarios.

Key benefits:

- Automotive-grade design for -40°C to 85°C wide-temperature operation
- NDIR infrared technology for stable CO2 measurement
- 0-50000 ppm range for cabin health and safety monitoring
- 9-16V automotive power supply for vehicle system integration
- T90 response time ≤60 s for fresh air and recirculation linkage
- Low power consumption, typical operating current 20 mA
- 15-year service life for long-term vehicle use
- Compact structure for dashboard, roof, and air duct installation

Typical applications:

- Intelligent healthy cabin CO2 monitoring systems
- Automatic fresh air ventilation control for vehicle HVAC
- Fresh/recirculated air switching and air quality management
- Fatigue-driving risk assistance and reminder systems
- Cabin comfort and safety features for new energy vehicles
- Air quality monitoring for child, pet, and parking rest scenarios

Standard Specification

Item	Description
Product name	Automotive CO2 Sensor
Sensing principle	NDIR non-dispersive infrared
Detection target	CO2
Operating voltage	9-16 VDC, typical 13.5 V
Operating current	20 mA @ DC13.5V, 25°C
Peak current	≤ 300 mA
Quiescent current	≤ 0.1 mA
Measuring range	0-50000 ppm
Resolution	1 ppm
Accuracy	0-50°C: ±50 ppm + 5% reading; -40-0°C / 50-85°C: ±100 ppm + 10% reading
Response time	T90 ≤ 60 s
Operating temperature	-40°C to 85°C
Storage temperature	-40°C to 90°C
Operating humidity	0-95%RH, non-condensing
Service life	15 years
Weight	≤ 20 g

Note:

Specifications can be further confirmed according to vehicle project interface, calibration, and installation requirements.

Document: MAXMAC-Automotive-CO2-EN Rev:1