P09 3-in-1 Automotive Sensor

The MAXMAC P09 3-in-1 automotive sensor is an integrated air quality detection module developed for intelligent and healthy vehicle cabins. It combines dual PM sensing, CO2 detection and AQS air quality signals to provide multi-dimensional environmental data for HVAC, fresh-air intake, recirculation and air purification systems.

The product supports a 9-16 V vehicle power supply and LIN communication interface, with wide-temperature operation from -40°C to 85°C. Dual PM channels support both in-cabin and outside particle monitoring, CO2 detection supports ventilation decisions, and AQS output identifies pollution levels for faster and more accurate cabin air control.

P09 is suitable for new energy vehicles and intelligent cabin air management systems. It can support automatic ventilation, purification linkage and comfort control in congestion, tunnels, long-distance driving, parking rest and other occupied cabin scenarios.

Product Advantages:

- Dual PM + CO2 + AQS integration reduces wiring and system cost
- In-cabin and outside particle monitoring supports smart air switching
- NDIR CO2 detection supports healthy cabin ventilation management
- AQS pollution level output enables air quality linkage control
- Automotive-grade wide-temperature design for complex vehicle use
- LIN communication interface for easy vehicle system integration
- Low-noise operation supports cabin comfort requirements
- Compact structure fits different vehicle platform layouts

Typical Applications:

- Intelligent healthy cabin air quality monitoring systems
- Automatic fresh-air intake and recirculation control for HVAC
- In-cabin/outside PM2.5, CO2 and pollution level display
- Air purifier, ionizer and fragrance system linkage
- Comfort and safety configuration for new energy vehicles
- Air quality monitoring for long-distance driving and parked vehicles

Standard Specification

Item	Description
Product Name	P09 3-in-1 Automotive Sensor
System	**PM2.5 + CO2 + AQS**
Supply Voltage	9-16 VDC
Operating Current	Average 80 mA @ 13.5VDC; peak 350 mA @ 13.5VDC
Operating Env.	-40°C to 85°C, 5%-95%RH, non-condensing
Storage Env.	-40°C to 85°C, 5%-95%RH, non-condensing
Life / Noise	30000 h; ≤25 dB(A) @ 50 cm
Dimensions	Main body 126 mm × 73.8 mm × 34 mm; with AQS harness approx. 126 mm × 418 mm × 34 mm
Communication	LIN
PM2.5	**Laser scattering analysis**
PM2.5 Range	0-999 μg/m³
PM2.5 Performance	Resolution 1 μg/m³; accuracy ±15 μg/m³ or ±15%; response ≤6 s
CO2	**NDIR technology**
CO2 Range	400-10000 ppm, resolution 1 ppm
CO2 Accuracy	±(50 ppm + 5% of reading)
CO2 Timing	Warm-up ≤10 s; response ≤20 s (t63%)
AQS	**Air quality level output**
AQS Performance	Warm-up 30 s; response ≤3 s; output level 0-6

Note:

Specifications can be confirmed according to project requirements. AQS harness length and installation form can be customized for vehicle layout.

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