



P07 Dual-Channel Automotive PM2.5 Sensor

The MAXMAC P07 Dual-Channel Automotive PM2.5 Sensor is a particulate matter sensing module developed for in-vehicle cabin air quality management. It supports both outside-air and in-cabin air sampling, providing reliable PM2.5 concentration data for HVAC fresh/recirculated air control, air purification, and healthy cabin systems.

The sensor supports 9-16V automotive power supply and CAN communication, with wide-temperature operation from -40°C to 85°C for long-term use in complex vehicle environments. Its dual-channel structure helps compare outdoor pollution levels with cabin air conditions, enabling the system to decide when to switch to recirculation or activate purification strategies.

With a 0-999 $\mu\text{g}/\text{m}^3$ measurement range, 1 $\mu\text{g}/\text{m}^3$ resolution, low-noise operation, and fast response, the P07 is suitable for passenger cars, commercial vehicles, new energy vehicles, and intelligent cabin platforms, improving air quality sensing accuracy, cabin comfort, and automatic control experience.

Key benefits:

- Automotive-grade wide-temperature design for complex cabin and outdoor environments
- Dual-channel PM2.5 detection for outside-air and in-cabin air comparison
- 0-999 $\mu\text{g}/\text{m}^3$ PM2.5 measurement range
- <10 s response time for fast HVAC strategy linkage
- CAN communication interface for vehicle network integration
- Low-noise operation for cabin comfort applications
- Service life ≥ 20000 h for long-term stable operation
- Suitable for healthy cabin and in-vehicle air quality management

Typical applications:

- Outside-air and in-cabin dual-channel PM2.5 monitoring systems
- Automatic fresh/recirculated air control for vehicle HVAC
- Intelligent cabin air quality display and warning
- In-vehicle air purifier linkage control
- Healthy cabin systems for new energy vehicles
- Air quality management for passenger cars, commercial vehicles, and shared mobility

Standard Specification

Item	Description
Product name	P07 Dual-Channel Automotive PM2.5 Sensor
Detection target	PM2.5 particulate matter
Operating voltage	9-16 VDC
Operating current	80 mA @ 13.5 VDC
Operating temperature	-40°C to 85°C
Operating humidity	5%-95%RH, non-condensing
Storage temperature	-40°C to 85°C
Storage humidity	5%-95%RH, non-condensing
Service life	≥ 20000 h
Noise	< 25 dB(A) @ 50 cm
Measuring range	0-999 $\mu\text{g}/\text{m}^3$
Resolution	1 $\mu\text{g}/\text{m}^3$
Accuracy	± 15 $\mu\text{g}/\text{m}^3$ or $\pm 15\%$
Response time	< 10 s
Overall dimensions	113.6 mm \times 84.3 mm \times 38 mm
Main body dimensions	113.6 mm \times 71.6 mm \times 25 mm
Communication	CAN

Note:

Main body dimensions are basic structural dimensions and do not include inlet/outlet tube installation dimensions.

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