



P57 Automotive PM2.5 Sensor

The MAXMAC P57 Automotive PM2.5 Sensor is a miniaturized particulate matter sensing module developed for in-vehicle cabin air quality monitoring. It measures PM2.5 concentration in real time and provides stable, reliable data input for automotive HVAC, air purification, and intelligent cabin control systems.

The sensor supports 9-16V automotive power supply and LIN2.1 communication, with wide-temperature operation from -40°C to 85°C for long-term use in complex vehicle environments. Its compact structure, fast response, and low-noise operation make it suitable for installation in dashboards, air ducts, HVAC housings, sampling pipes, and cabin air monitoring positions.

With a 0-999 $\mu\text{g}/\text{m}^3$ measurement range, 1 $\mu\text{g}/\text{m}^3$ resolution, and stable detection accuracy, the P57 supports automatic fresh/recirculated air switching, air purification linkage, healthy cabin display, and in-cabin pollution warning, meeting the air quality sensing integration needs of passenger cars, commercial vehicles, and new energy vehicle platforms.

Key benefits:

- Automotive-grade wide-temperature design for complex cabin environments
- Compact structure for easier vehicle space integration
- 0-999 $\mu\text{g}/\text{m}^3$ PM2.5 measurement range
- <10 s response time for fast HVAC and purification strategy linkage
- LIN2.1 communication interface for vehicle control system connection
- Low-noise operation to meet cabin comfort requirements
- Service life ≥ 20000 h for long-term stable operation
- Suitable for healthy cabin and in-vehicle air quality management

Typical applications:

- Automotive intelligent cabin air quality monitoring systems
- Automatic fresh/recirculated air control for vehicle HVAC
- In-vehicle air purifier linkage control
- Healthy cabin systems for new energy vehicles
- In-cabin PM2.5 display, alarm, and pollution warning
- Air quality management for passenger cars, commercial vehicles, and shared mobility

Standard Specification

Item	Description
Product name	P57 Automotive PM2.5 Sensor
Detection target	PM2.5 particulate matter
Operating voltage	9-16 VDC
Operating current	60 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) @ 10 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	37 mm \times 36.8 mm \times 30 mm
Main body dimensions	62 mm \times 59 mm \times 30 mm
Communication	LIN2.1

Note:

Main body dimensions are basic structural dimensions and do not include mounting brackets or fixing structures.

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