P11 Automotive PM2.5 Sensor

The MAXMAC P11 Automotive PM2.5 Sensor is a high-reliability particulate matter sensor developed for in-vehicle cabin air quality monitoring. It measures PM2.5 concentration in real time and provides stable data input for automotive HVAC, air purification, and intelligent cabin control systems.

With a compact structure, 9-16V automotive power supply support, and LIN2.1 communication interface, the sensor is designed to operate across a wide temperature range from -40°C to 85°C. It features fast response, low noise, and long service life, making it suitable for installation in dashboards, air ducts, HVAC housings, and cabin air sampling positions.

Combining a 0-999 μg/m³ measurement range, 1 μg/m³ resolution, and stable detection accuracy, the P11 supports automatic fresh/recirculated air switching, air purification linkage, healthy cabin display, and in-vehicle air quality management. It is an ideal solution for passenger cars, commercial vehicles, and new energy vehicle platforms.

Key benefits:

- Automotive-grade wide-temperature design for complex cabin environments
- 0-999 μg/m³ PM2.5 measurement range
- <10 s response time for fast control strategy linkage
- LIN2.1 communication interface for vehicle system integration
- Low-noise operation for cabin comfort applications
- Compact size and flexible installation for multiple mounting positions
- 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
- Air quality management for passenger cars, commercial vehicles, and shared mobility fleets
- In-cabin PM2.5 display and alarm systems

Standard Specification

Item	Description
Product name	P11 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 μg/m³
Resolution	1 μg/m³
Accuracy	±15 μg/m³ or ±15%
Response time	< 10 s
Overall dimensions	88.8 mm × 65 mm × 16 mm
Main body dimensions	65 mm × 54 mm × 28 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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