



P15 3-in-1 Automotive Sensor

The MAXMAC P15 3-in-1 automotive sensor is a multi-parameter air quality detection module developed for intelligent and healthy vehicle cabins. It integrates PM2.5, CO₂ and AQS air quality signals to provide comprehensive environmental data for HVAC, fresh-air intake, recirculation and air purification systems.

The sensor supports a 9-16 V vehicle power supply and LIN communication interface, with wide-temperature operation from -40°C to 85°C. Its separated sampling and control structure allows flexible installation at key in-cabin sampling points while maintaining detection stability and vehicle-level integration efficiency.

By monitoring PM2.5 particles, CO₂ concentration and AQS levels together, P15 helps build a complete cabin air quality control loop, improving comfort and safety during congestion, tunnel driving, long-distance trips, parking rest and other occupied cabin scenarios.

Product Advantages:

- PM2.5, CO₂ and AQS integration reduces system part count
- Automotive-grade wide-temperature design for harsh vehicle environments
- LIN communication interface for easy vehicle system integration
- PM2.5 response ≤6 s for fast air quality linkage control
- CO₂ range of 400-10000 ppm supports healthy cabin ventilation
- AQS 0-6 level output enables pollution level assessment
- Low-noise operation supports cabin comfort requirements
- Separated structure adapts to different vehicle layouts

Typical Applications:

- Intelligent healthy cabin air quality monitoring systems
- Automatic fresh-air intake and recirculation control for HVAC
- In-cabin 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	P15 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/m ³
PM2.5 Performance	Resolution 1 µg/m ³ ; accuracy ±15 µg/m ³ or ±15%; response ≤6 s
CO₂	NDIR technology
CO ₂ Range	400-10000 ppm, resolution 1 ppm
CO ₂ Accuracy	±(50 ppm + 5% of reading)
CO ₂ 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:

AQS harness length can be customized according to vehicle installation requirements. Specifications can be confirmed by project.

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