SPECIFICATION

Product Name: Automotive Particulate Matter Sensor

Item No.: APMS-3004

Version: V0.1 (preliminary)

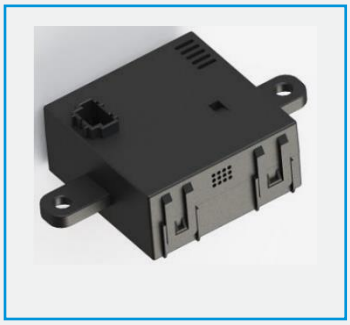
Date: 2021-9-3

Revision

No.	Version	Content	Date
1	V0.1	Preliminary revision	2021-9-3

Automotive Particulate Matter Sensor

APMS-3004



Applications

- Vehicle interior air quality monitoring

Description

APMS-3004 is a laser particle sensor module for automotive use, capable of enduring an internal vehicle environment. This sensor can measure particle concentration PM2.5 exactly and output μg/m^3 directly via mathematical algorithm and scientific calibration.

Features

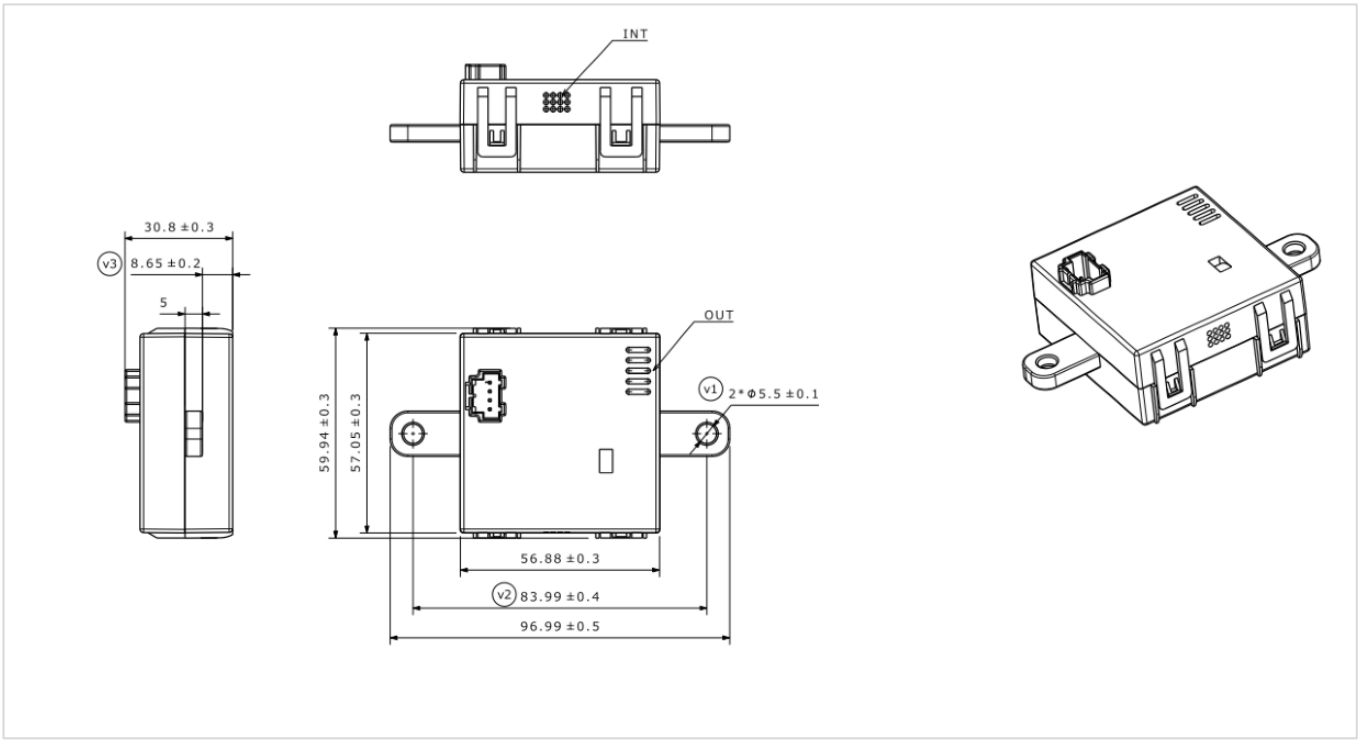
- High-temperature laser module, constant power output, working temperature can reach 85 ℃;
- Mature vehicle level circuit design suitable for various automotive environment
- Wide measurement range
- Low power consumption mode available
- Long lifetime laser

Working Principle

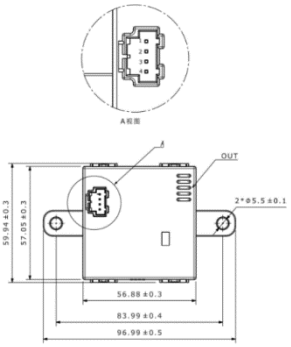
The internal negative pressure generated by the fan is used for air sampling. When the particles in the sampled gas pass through the light source (laser) and other beam receiving beams, light scattering phenomenon is generated. Scattered light is converted into electrical signal (pulse) by photoelectric converter. The larger the particle size is, the larger the output pulse signal amplitude will be. The number and concentration of particles of different sizes will be calculated by comparing the peak value of the wave with the predetermined threshold value, and then the mass concentration value will be obtained by professional algorithm (the particle size is only reflected by the pulse signal amplitude, which has no relationship with the pulse duration). That is, by measuring the intensity of scattered light, real-time test data can be obtained.

Dimensions and Connector

1. Dimensions (Unit mm, Tolerance ±0.2 mm)



2. Connector Pinout



No.	Pin	Description
1	GND	Power input（ground）
2	NC	NC
3	LIN	LIN communication
4	VBAT	Power input（+12V）

3. Connector

Item	Part Number	Pitch	Recommendation Manufacturer
Sensor Connector	/	2.54mm	Cubic
Matching Connector	5-936119-1	2.54mm	Tyco

Specifications

General Performance	
Operating principle	Laser scattering
Measured particle range	>0.3μm
Measurement range	0~1000μg/m³
Resolution	1μg/m³
Accuracy①	≤100μg/m³，±15μg/m³ 100μg/m³ ~500μg/m³ ±15% of reading ＞500μg/m³，±30% of reading
Data refresh time	1s
Response time	T90≤10s
Digital output	LIN
IP rating	IP52
Noise	≤30dB(A)@50cm
Design Lifetime	>5 years
Environmental	
Working condition	-40~+85℃,5-95%RH (non-condensing)
Storage condition	-40~+90℃,5-95%RH (non-condensing)
Electrical	
Power supply	9V ~16 V DC (standard voltage 12V DC)
Working current	≤150mA (@12V)
Standby current	＜100μA (sleep mode)

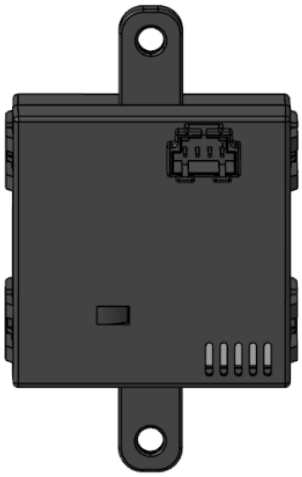
Note:

① Accuracy is based on 0~1000μg/m³ measurement range, -20~+70℃ temperature range.

Product Installation

- In order to avoid dust deposition on the surface of sensitive component (laser diode and photosensitive diode) which may affect the measurement accuracy, the appropriate installation ways are recommended as below.

Recommended installation



Photosensitive diode faces down

After-Sales Services and Consultancy

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