

SGX

SENSORTECH

An Amphenol Company



Automotive



Health



Air Quality

Particulate Matter Sensor

Datasheet

The Particulate Matter Sensor **PM2.5** is a laser sensor for automotive applications that can measure PM2.5 concentrations.



AUTOMOTIVE



Quality, Safety, Responsibility

Functional specifications

Features

- Automotive product
- Fast response time
- High reliability technology
- Concentration range from 0 up to 500 $\mu\text{g}/\text{m}^3$
- Low power consumption (<100mA)
- LIN 2.1 communication
- Standard automotive connector



Principle

Particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems.

Some particles less than 10 micrometers in diameter can get deep into your lungs and some may even get into your bloodstream.

The particles less than 2.5 micrometers in diameter, also known as fine particles or PM2.5, pose the greatest risk to health.

The PZB5 module provides an accurate reading of PM2.5 concentration levels, which optimizes air conditioning control, resulting in the healthiest possible air in all conditions.



Applications

- Automotive Air Conditioner

Good quality air in the car is becoming one of the basic standards in today's world. Everyone wants to make sure that the air we inhale does not contain dust, bacteria, volatile gases, or metal particles that are not visible but threaten human health. Caring about air quality in the car is growing and becoming more common every day. Therefore, we encourage you to use our sensors for PM2.5 as well as other air quality sensors such as CO₂.

Main technical characteristics

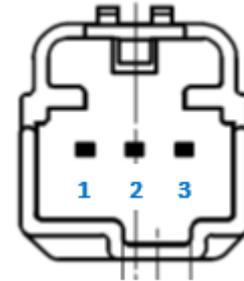
Temperature and humidity range	10~98% RH -40°C to +85°C
Temperature storage	-40°C to 85°C
IP level	IP5K2
Fixing	2 Screws 4x8 - T20
Connector	MOLEX 31067-1010
External dimensions	75mm x 42,9mm x 32,5 mm
Weight	< 50 g
Power supply operating range	8 to 16V
Current consumption (Average)	< 100 mA, @12V < 0.1mA (Sleep mode)
Output signal	LIN 2.1
PM 2.5	0 - 500µg/m ³
Accuracy <i>(High accurate reference instrument Mini-WRAS by Grimm)</i>	± 15% between 5 and 50 µg/m ³ & -10 to 60°C ± 20% between 51 and 500 µg/m ³ & between -10 to 60°C ± 30% between -40 to -10°C Above a cabin air ambient temperature of 60°C the laser protection is on and no PM2.5 value calculated-refreshed- transmitted.
Refreshment period	5 seconds
Start-up time	≤ 10 seconds
Lifetime	10 years / 240'000km 10'000h

PM2.5

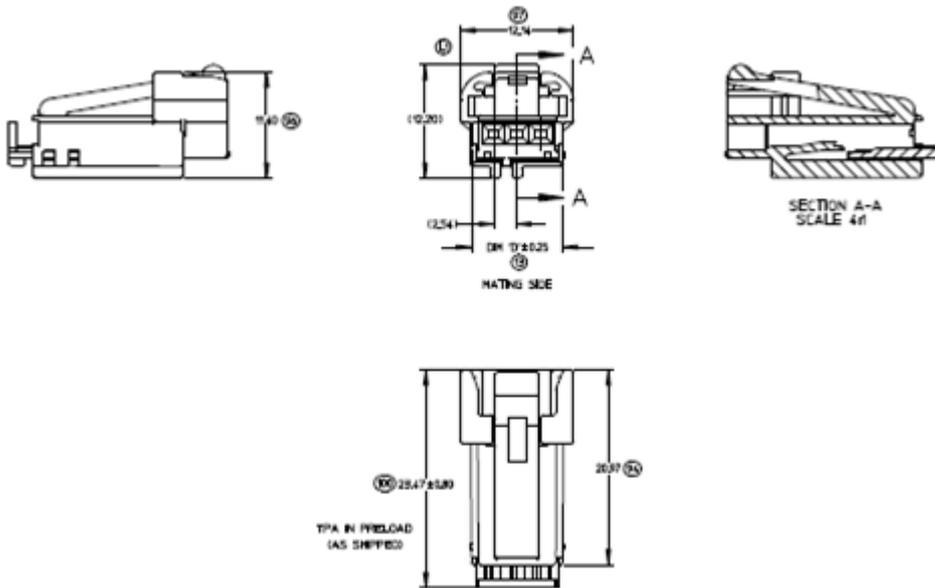
Interface and integration

Connector specification

Connector type	MOLEX 31067-1010
Communication	Lin 2.1
Pinout	Pin1: Vbat Pin2: LIN Pin3: GND



Housing connector pin-definition.

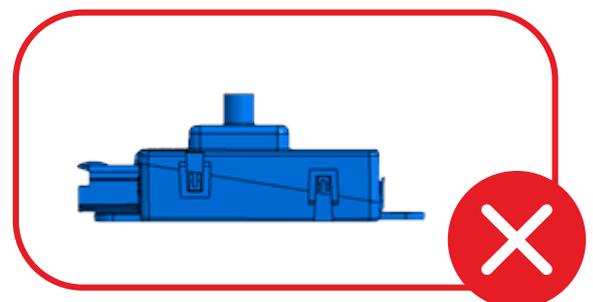
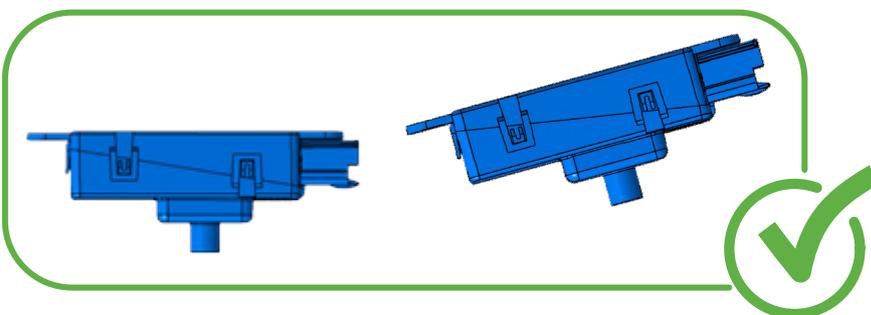


Mating connector design

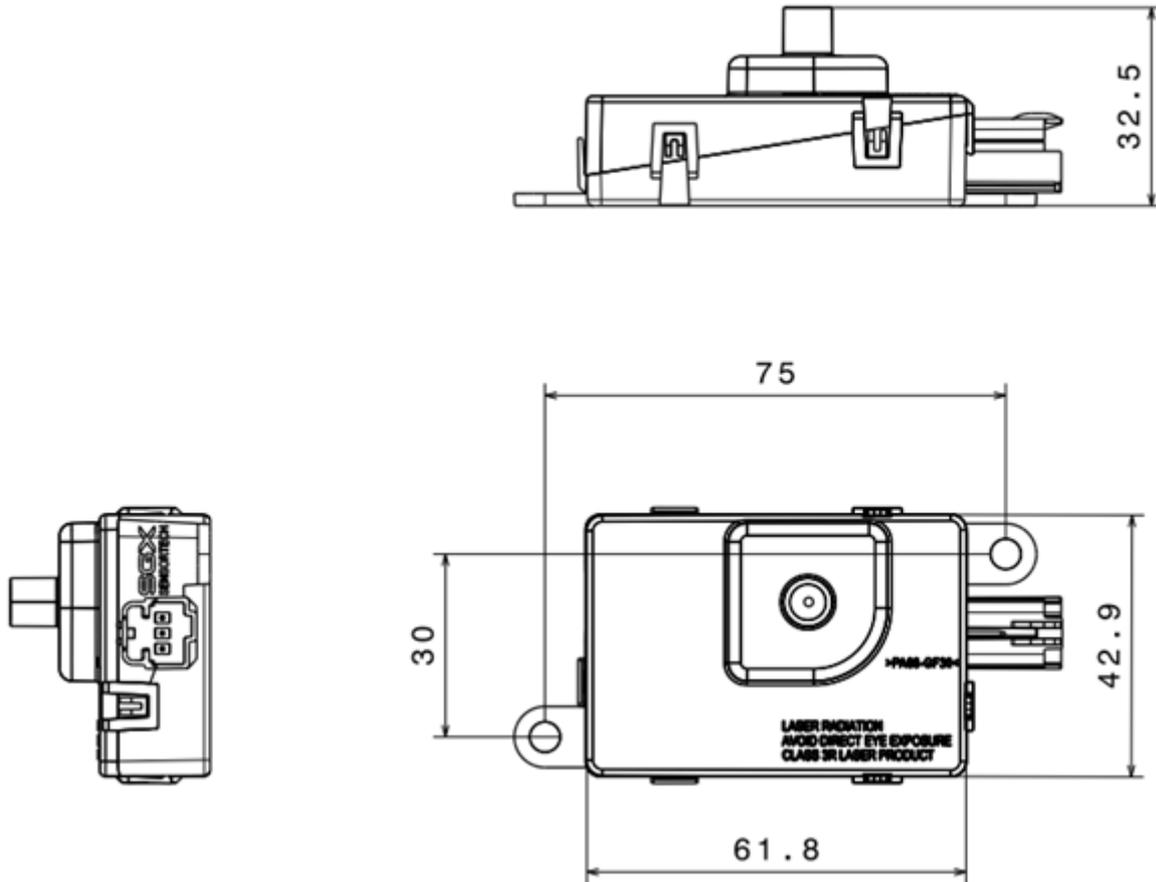
Recommendation for integration

The sensor should be with the air inlet facing downward to prevent the water and dust accumulation and should never be facing upward to lessen the likelihood of damage.

A small angle can be acceptable around 15 to 30°.



External dimension



DISCLAIMER:

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SGX Europe Sp. z o.o. sensors are designed to operate in a wide range of harsh environments and conditions. However, it is important that exposure to high concentrations of solvent vapours is to be avoided, both during storage, fitting into instruments and operation. When using sensors on printed circuit boards (PCBs), degreasing agents should be used prior to the sensor being fitted. SGX Europe Sp. z o.o. makes every effort to ensure the reliability of its products. Where life safety is a performance requirement of the product, we recommend that all sensors and instruments using these sensors are checked for response to gas before use.

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