

■ Outline

The sensor detects “PM (particle matters) in the air” by optical method.

This sensor uses LD (laser diode) as light-emitting device and PD (photo diode) as light-receiving device.

The LD inside the sensor emits light to the air in a detection area. The PD inside the sensor detects scattering light which correlated to the actual floating particles in the air. A Microcomputer (MCU) inside the sensor analyzes the wave profile from PD by optimistic algorithm, then output a converted mass-density ($\mu\text{g}/\text{m}^3$) through I²C & UART interface.

■ Main Features

- Smaller size
- High accuracy ($\pm 10\%$, from low to high concentrations)
- High sensitivity & quick response
- Maintain performance by unique Auto Calibration Function
- Minimize dust accumulation by optimized air pathway structure and it makes possible to avoid “tracking” for electrical safety

■ Environmental Responsiveness

- This product complies with RoHS directive.

■ Usage Application

- To detect the floating particle in the air (PM_{2.5}, PM₁₀ & PM₁, cigarette smoke, house dust, etc.)
Ex: air purifier, fan, and air conditioner

■ Dimensions

37 x 37 x 12 (thickness) [mm]

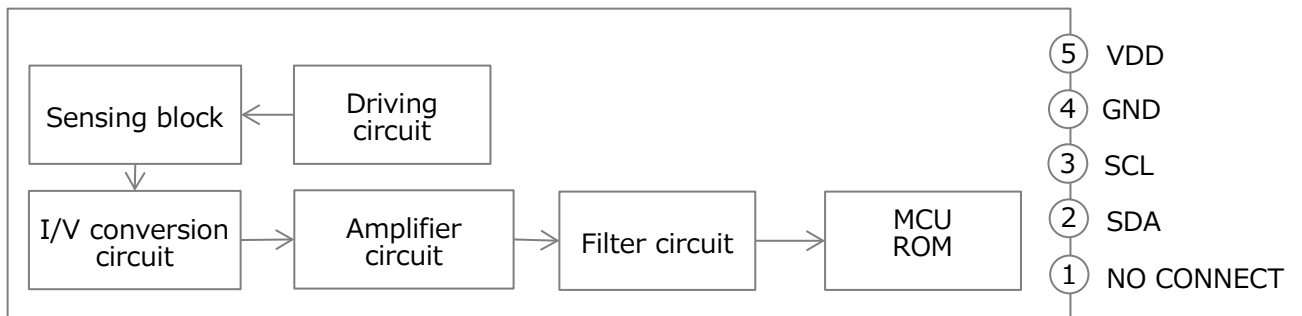
■ Weight

Approx. 13 [g]

■ Operating Characteristics

Category	Characteristics	Note
Operating voltage	DC5V +/-10%	
Consumption current	Below 100mA	
Operating temperature	-10 ~ 60°C, under 95%RH	no dew condensation
Storage temperature	-40 ~ 70°C, under 95%RH	no dew condensation
Minimum detectable particle	0.3µm	
Indicatable range:	0µg/m ³ - 2,000µg/m ³ (UART) 0µg/m ³ - X,XXXµg/m ³ (I ² C)	
Maximum consistency error	±10%	35µg/m ³ <、 <1,000µg/m ³
Response time	1 sec	
Time to first reading	8 sec	
Initial stability time	Approx. 28 sec after power on	8 sec for initialization 20 sec for average processing
Output method	Digital signal output · I ² C & UART (TTL)	Refer to the Communication Specifications

■ Block Diagram



Connector : SM05B-GHS-TB(LF)(SN) (J.S.T. Mfg. Co., Ltd.)