

■ 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 (PM2.5, PM10 & PM1, cigarette smoke, house dust, etc.)
Ex: air purifier, fan, and air conditioner

■ Dimensions

37 x 37 x 12 (thickness) [mm]

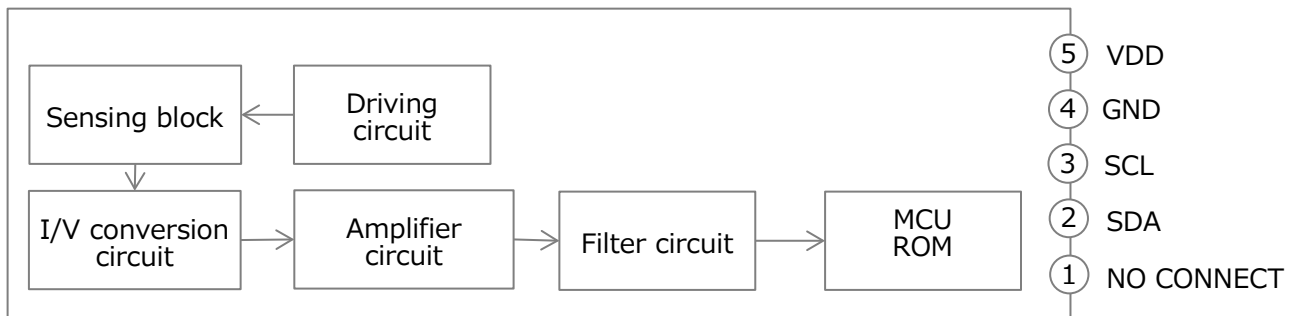
■ Weight

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.)