Digital universal particle concentration sensor

PMS7003 series data manual

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Main characteristics

- Zero false alarm rate
- Real-time response
- Correct data
- Minimum distinguishable particle diameter :0.3 micrometer
- High anti-interference performance because of the patent structure of six sides shielding
- Optional direction of air inlet and outlet in order to adapt the different design
- Very Slim

Overview

PMS7003 is a kind of digital and universal particle concentration sensor, which can be used to obtain the number of suspended particles in the air, i.e. the concentration of particles, and output them in the form of digital interface. This sensor can be inserted into variable instruments related to the concentration of suspended particles in the air or other environmental improvement equipments to provide correct concentration data in time.

Working principle

Laser scattering principle is used for such sensor, i.e. produce scattering by using laser to radiate suspending particles in the air, then collect scattering light in a certain degree, and finally obtain the curve of scattering light change with time. In the end, equivalent particle diameter and the number of particles with different diameter per unit volume can be calculated by microprocessor based on MIE theory. Please find the functional diagram of each part of sensor from Figure 1 as follows.

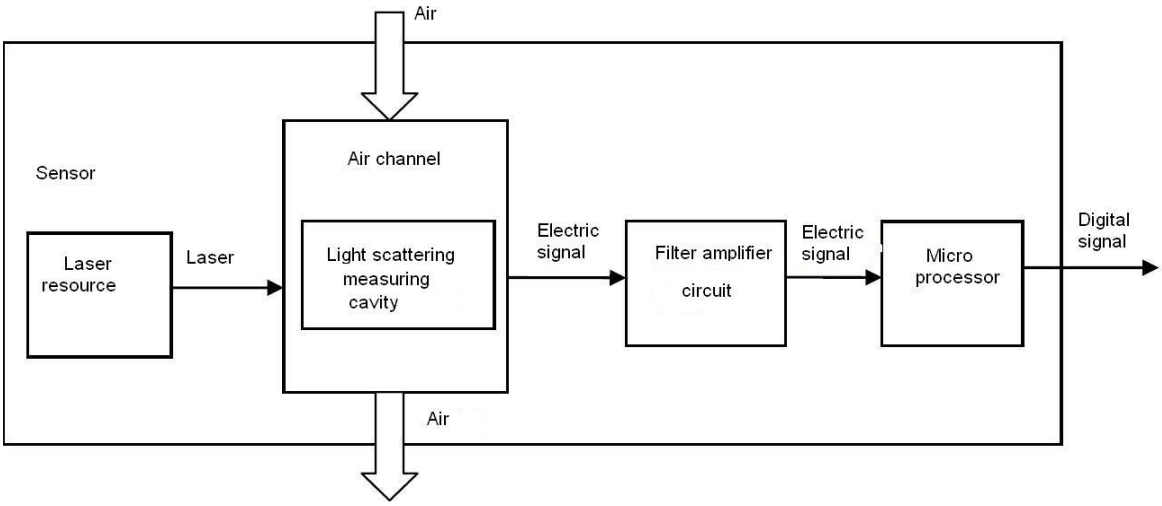

Figure 1 Functional block diagram of sensor

Technical Index

Parameter	Index	unit
Range of measurement	0.3~1.0；1.0~2.5；2.5~10	Micrometer（μ m）
Counting Efficiency	50%@0.3μ m 98%@>=0.5μ m	
Effective Range（PM2.5 standard）	0~500	μ g/m^3
Maximum Range（PM2.5 standard）*	≥1000	μ g/m^3
Resolution	1	μ g/m^3