

Industrial Dust Sensor

Specifications

Product Number:SDS026-P

Version:V1.6



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Catalogue

Overview.....	1
Characteristic.....	1
Scope of Application.....	2
Working Principle.....	2
Technical Indicators.....	2
Interface Specifications.....	4
Product Specifications.....	5
Guidance on the optimal installation of equipment.....	7
Equipment and Accessories List.....	9
Contact.....	错误! 未定义书签。

Overview

SDS026 is a large-scale industrial environmental particulate matter sensor based on the principle of laser scattering method. It supports external temperature and humidity probe (optional), and can perform automatic humidity calibration on data; industrial-grade lasers and photosensitive components, and sheath gas protection is added to the optical components. The structure greatly improves the service life of the sensor in harsh environments and greatly reduces the maintenance workload. The sensor is suitable for online dust concentration detection of construction site dust, road dust and environmental protection.

Characteristic

- Accurate data: laser detection principle, industrial-grade laser light source;
- High range: PM2.5 range is 0-20mg/m³, PM10 range is 0-50 mg/m³, PM100 range is 0-100 mg/m³, sensor resolution is 1 μg/m³;
- Automatic humidity calibration: equipped with a temperature and humidity sensor (optional), with high accuracy, the device can realize the automatic humidity calibration function to minimize the impact of humidity on the value;
- Stable flow rate: Active sampling method is adopted, and high-performance electromagnetic pump can be selected for sampling components, with stable flow rate, which can meet the long-distance long-distance high negative pressure sampling, and constant-current intake fan can also be used;
- Fast response: the data update frequency is 1Hz;
- Easy to integrate: RS485 and UART TTL serial output;
- High resolution: the minimum diameter of PM2.5/PM10 resolution particles is 0.3 microns;
- Small maintenance: The optical part is added with a sheath gas protection structure, which improves the service life of the sensor in harsh environments and greatly reduces the manual maintenance workload;
- Hose design: can be connected to an external hose for easy integration.

Scope of Application

Dust detection on construction sites and roads, factory boundary monitoring of high-polluting enterprises, and environmental protection big data monitoring.

Working Principle

The principle of laser scattering is adopted: when the laser irradiates the particles passing through the detection position, weak light scattering will be generated, and the light scattering waveform in a specific direction is related to the particle diameter. The real-time particle number concentration of the diameter is obtained according to the calibration method to obtain the unified mass concentration with the official unit.

The optical part sheath gas protection structure technology improves the service life of the sensor in harsh environments and greatly reduces the manual maintenance workload.

Technical Indicators

NO	Project	Parameter	Remark
1	Measurement output	PM2.5+PM10+PM100	
2	Range	PM2.5: 0.0--20mg/m ³ PM10: 0.0--50mg/m ³ PM100: 0.0--100mg/m ³	
3	Input voltage	DC12V [9~25VDC]	
4	Rated power	5 W	
5	Sleep power	0.24 W	
6	Working Temperature	-20~55℃	
7	Humidity Range	0-99%RH	
8	Working Atmospheric Pressure	86KPa~110KPa	

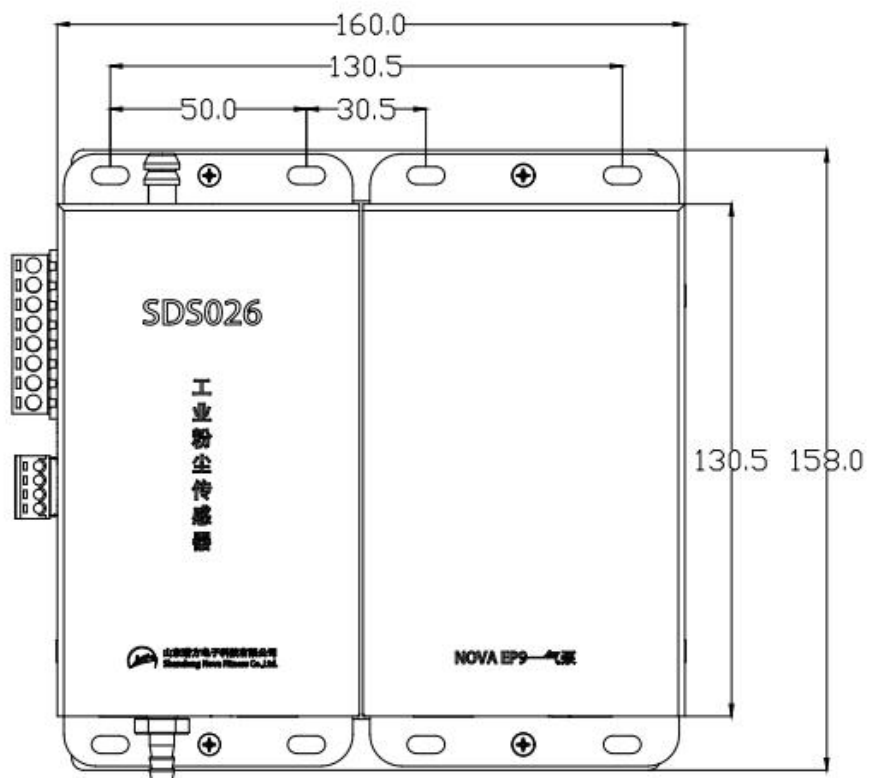
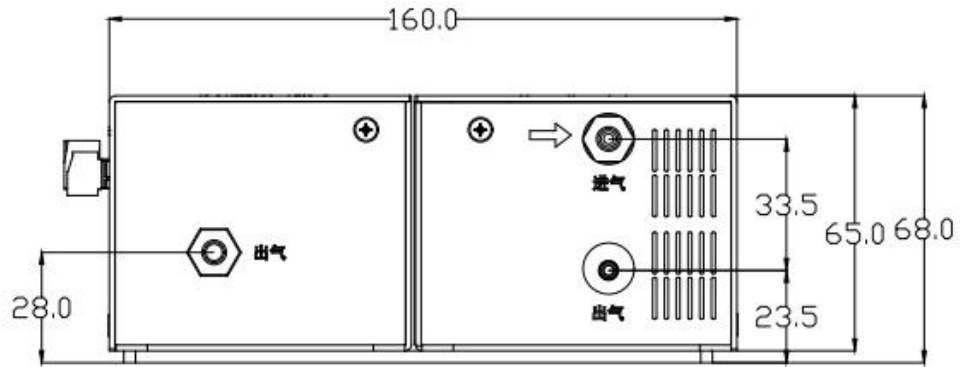
9	Response Time	1S	
10	Communication Interface	RS485 + UART TTL	Can be customized
11	Protocol	Modbus-RTU	Can be customized
12	Counting Efficiency	70%@0.3 μ m 98%@0.5 μ m	@25 $^{\circ}$ C, 50%RH
13	Relative Error	Max of \pm 10%and \pm 8 μ g/m ³ @PM2.5 Max of \pm 15%and \pm 10 μ g/m ³ PM10 Max of \pm 18%and \pm 30 μ g/m ³ PM100	@25 $^{\circ}$ C, 50%RH
14	Product Size	130x160x68mm	
15	Hose size	inside diameter: ϕ 8mm outside diameter: ϕ 12mm	
16	Life	3years	Without air pump Below 40 $^{\circ}$ C

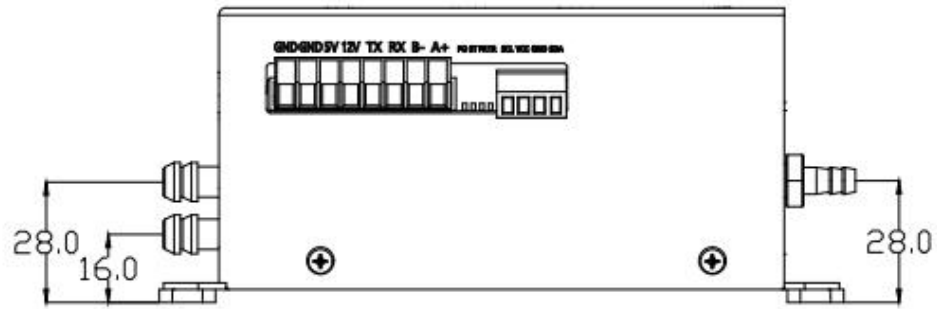
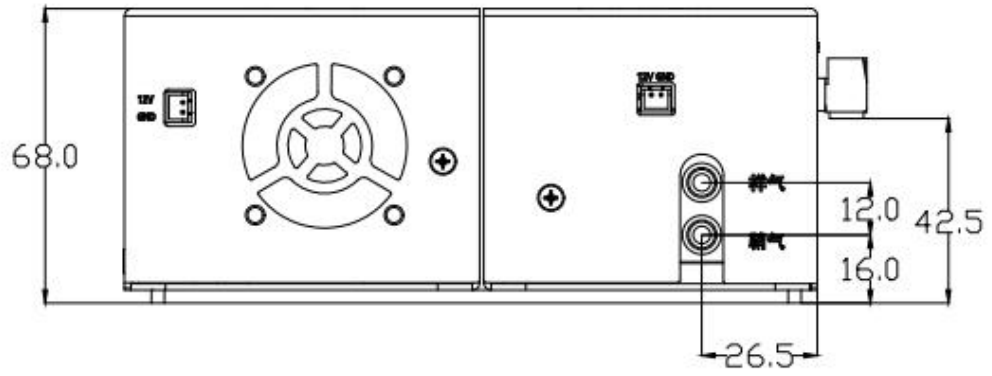
Interface Specifications

Pin	Name	Remark
1	A+	A+ of 485 communication, 485 standard level
2	B-	485 communication B-, 485 standard level
3	Tx	TTL serial port send TX, level 5VDC
4	Rx	TTL serial port receiving RX, level 5VDC
5	12V	DC 12V working voltage (input range 9-25VDC)
6	5V	DC 5V power supply (only for sensor parameter setting)
7	GND	Equipment
8	GND	Equipment

Product Specifications

(Unit: MM)

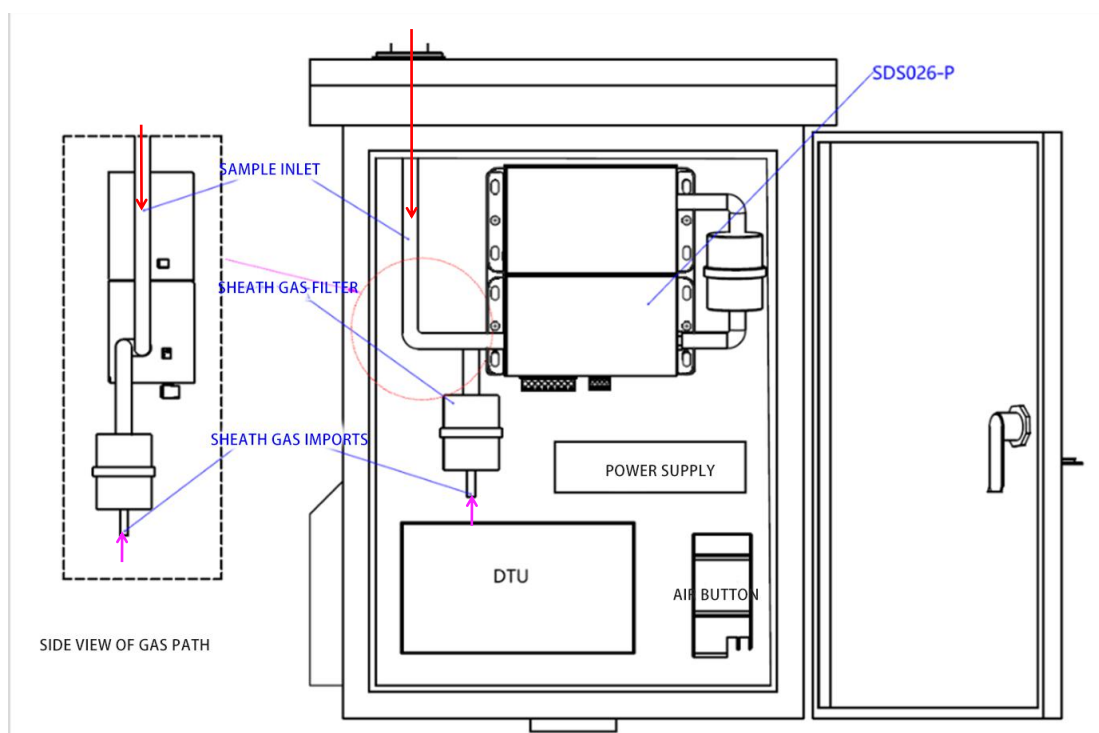




Guidance on the optimal installation of equipment

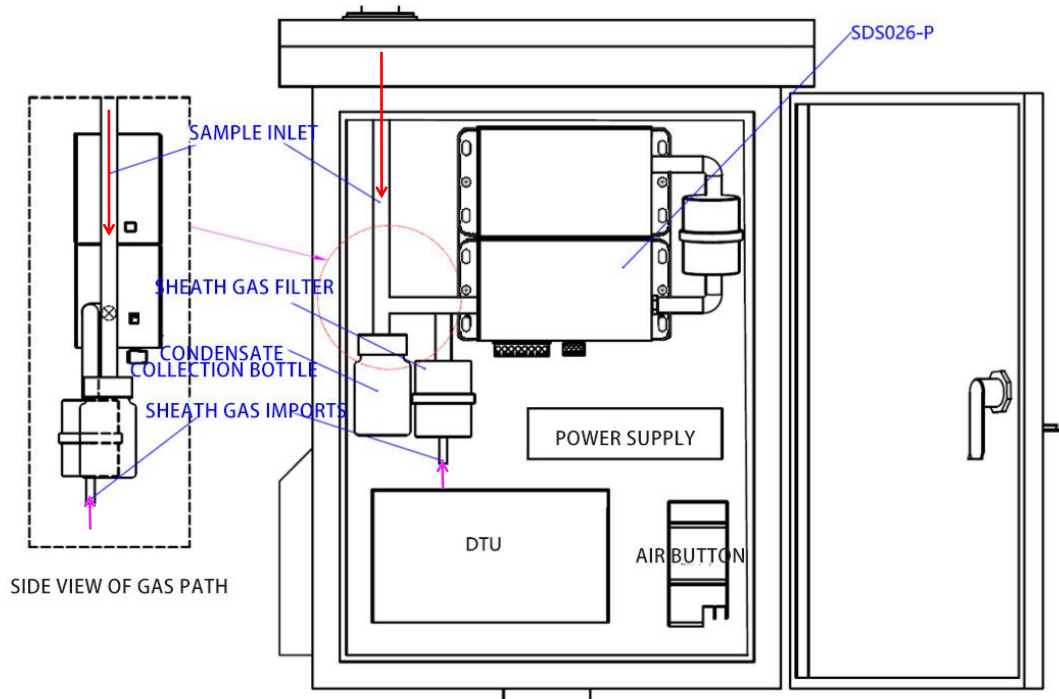
Installation method

Under the general atmospheric environment, the optimal installation method of the equipment is shown in the following figure:



In high humidity environment:

In a high-humidity environment, on the basis of the above installation methods, the equipment can add a condensed water collection bottle to the sampling gas path of the equipment according to the actual situation (the size and shape of the bottle can be selected and adapted by the customer), as shown in the following figure:



Equipment and Accessories List

Number	Name	Quantity	Remark
1	Host	1	
2	Protective Net	1	Be sure to equip or use accessories with similar
3	Data Line	1	Only for sample
4	TTL to USB	1	
5	Filter Element	2	One sheath gas structure and one gas pump structure

Contact

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