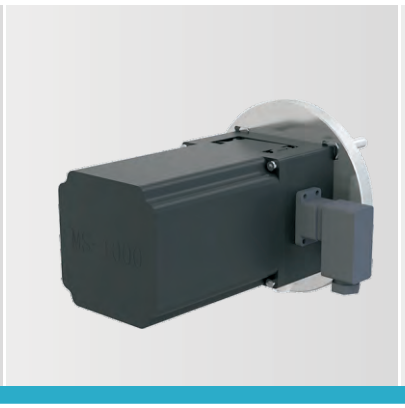
ZETIAN
Process & Environmental

DMS Series Dust Monitors

DMS–100 / MS–1000 / DMS–200 / DMS–300

Focusing on
Environmental & Industrial Analysis

HANGZHOU ZETIAN TECHNOLOGY CO.,LTD.

DMS series

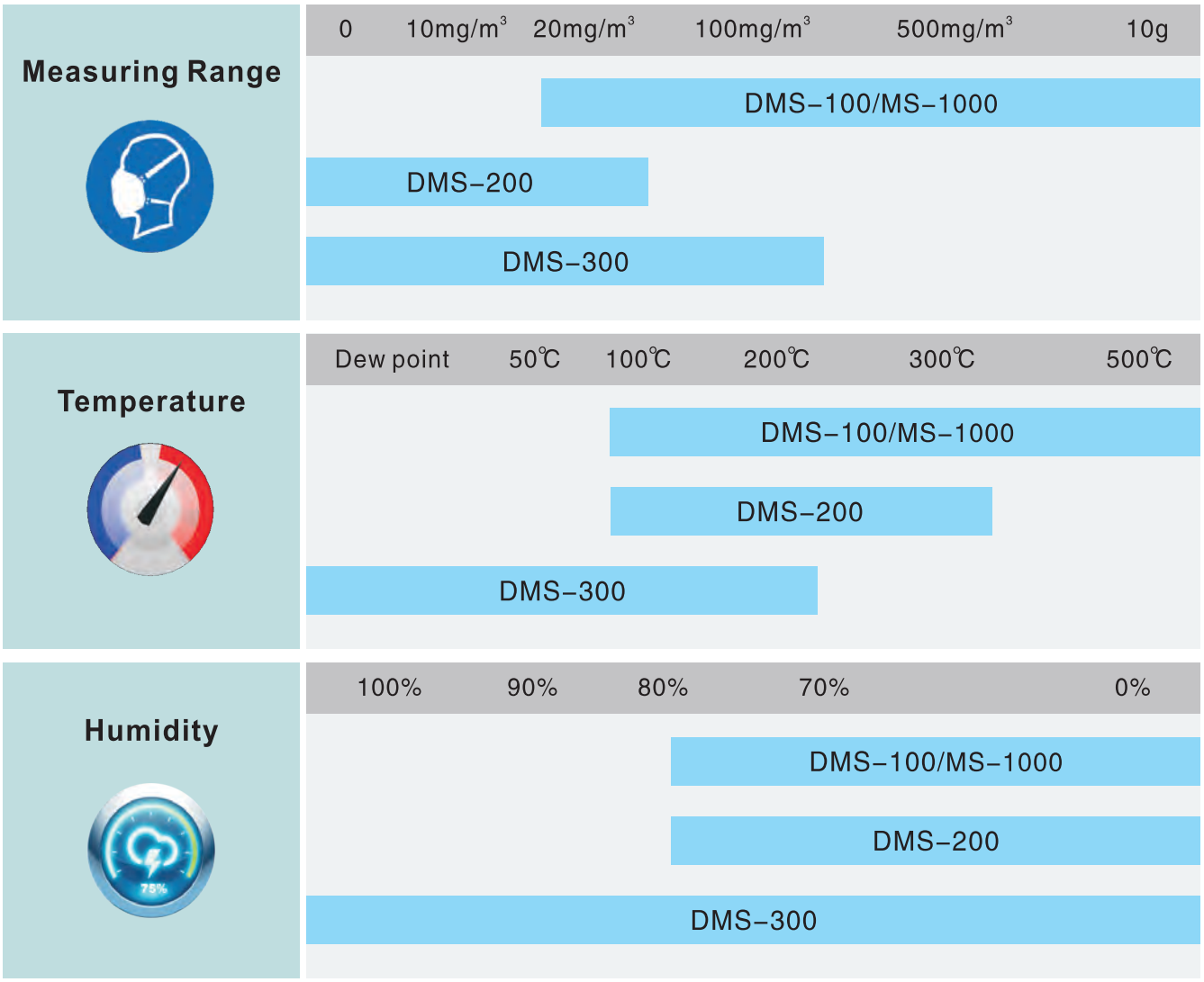
Dust monitor function comparion

Model		DMS–100	MS–1000	DMS–200	DMS–300
Measuring Principle		Laser Backward Scattering	Laser Backward Scattering	Laser Forward Scattering	Laser Forward Scattering
In-situ		●	●	●	
Extractive					●
Info Record				●	●
Automatic Zero					●
Automatic Blowback					●
HMI	Key+OLED	○		●	●
	Upper computer	●	●	○	○
	Remote control	○			
Range Switching				●	●
Alarm Output			○	●	●
RS485		○	●	●	●
RS232		○	○	○	○
Detection Lower Limit		1mg/m^3	1mg/m^3	0.005mg/m^3	0.05mg/m^3
Measuring Range		0 ~ 500mg/m^3	0 ~ 500mg/m^3	0 ~ 10mg/m^3	0 ~ 10mg/m^3

● Existing ○ Option

DMS series

Comparison of emission dust monitors according to application criteria



DMS Series Dust Monitors can be applied to power plants, cement plants, metallurgical and wood industry, chemical plant, waste incineration, etc.

Specific application:

DMS-100/MS–1000 is used for particulate matter concentration measurement of general stack and before dedusting in the high temperature situation.

DMS-200 is used for measurement of low particulate matter concentration and low flue gas humidity (no condensation).

DMS-300 is used for high flue gas humidity and low particulate matter concentration (saturation).

DMS series

For continuous monitoring of high temperature and particle concentration

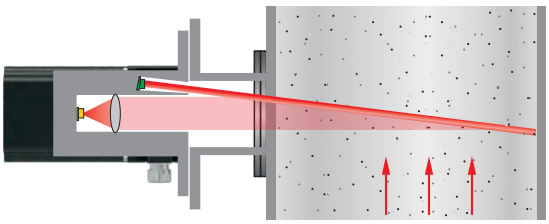
Overview

DMS–100/MS–1000 is an on-line dust monitoring device using the mainstream technology of laser back-scattered light principle with imported core components. DMS-100/MS–1000 is mainly used for continuous monitoring of various sources emissions of particulate matter concentrations. It can be either equipped with CEMS, or connected with dust monitoring network by a shared set of data acquisition and processing background.

It is available for the monitoring and control of soot emission, flue gas DeSOx and removal of dust for power generation boilers, industrial furnaces, industrial boilers in the thermal power, iron and steel metallurgy, petrochemical, chemical, cement production, ceramics, waste incineration, etc.

Measuring principle

DMS–100/MS–1000 dust monitors consists of optical section, circuit and control section, calibrator and air curtain protection components.



The laser beam (650 nm) comes across the detection area and produces scattered light after effect with dust particles. The back-scattered light crosses the lens converges into photosensitive detector. Analyzer circuit and control section converts light signal into signal output which is proportional to the dust concentration, and obtains dust particles emission concentration of pollution.

Specifications

Principle	Backward scattering	Stack Diameter	＞0.7m
Ranges	0～200mg/m^3, 0～10g/m^3(optional)	Analog Output	4-20mA, maximum load 800Ω
Accuracy	±2%F.S.	Digital Interface	RS485, 2 relay outputs, bluetooth
Repeatability	±1%F.S.	HMI	Upper computer, telephone APP extensible
Response Time	1s	Weight	4kg
Laser Transmitter	650nm	Power	＜3W
Flue Gas Temperature	＜500℃ (higher temperature need to be customized)	Dimensions	158mm* 158mm*234mm(square)
			158mm* 158mm*273mm(circular)
Ambient Temperature	-40～＋50℃	Supply	24VDC±10%

Features

- In-situ zeroing and span calibration
- Automatic gain control function and temperature compensation
- Smart appearance, easy installation, convenient disassembly
- Without background light influence

External Dimension

1.Installation on standard flange to the stack

2.Installing rainproof on backend of monitor

3.Power and gas source connecting at backend of monitor

DMS series

For dust concentration detection of ultra low range

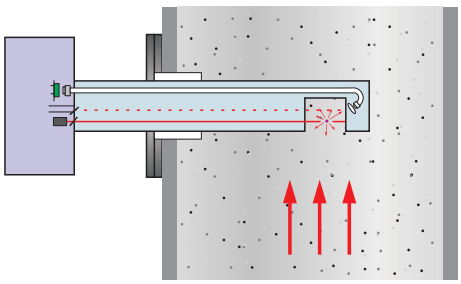
Overview

Different from normal back scattered dust monitors(DMS-100/MS–1000), DMS-200 inserts to the stack to realize flue dust measurement with dust measuring modules in the probe tip, and forward scattering method is possible to achieve very low detection limits.

Measuring principle

DMS-200 uses laser forward scattering principle to detect the dust concentration in the stack.

The modulated laser irradiates dust particles in the flue to emit scattering light. Lens in front of laser collects the forward scattered light into the high-temperature-resistant fibers and then the optical signal is transmitted to the detector, been analyzed and processed by the signal processing unit.The intensity of the scattered light is proportional to the concentration of particulate matter, and the detector signal current can be converted characteristically to the concentration of flue dust.



Specifications

Principle	Laser forward scattering	Compressed Gas	(0.2~1)MPa, No water and oil, gas consumption 5L/min
Ranges	0 ~ 10mg/m^3, multi-range auto switch	probe length	1m, 1.5m(optional)
Detection Lower Limit	0.005mg/m^3	Weight	15kg
Measuring Error	±10%	Interface	RS485(default), RS232(optional)
Repeatability	±2%	Supply	24VDC
Flue Gas Temperature	<250℃ (no condensation)	Power	<5W
Ambient Temperature	-40℃ ~ +50℃	Dimensions	185mm* 185mm*1500mm

Features

- Using laser forward scattering principle detecting the concentration of dust, the detection limit as low as 0.005mg/m^3
- Using air curtain purge to protect lens of the laser and detector. Backblow gas can be heat automatically by the temperature of the probe inside the stack, and achieve dust proof function of internal positive pressure.
- Probe portion with high temperature resistant design
- Support automatic zeroing
- Support automatic range switching
- Support manual span calibration

External Dimension

1.Installation on standard flange to the stack

2.Mounting flange height need be higher than the fence height to install the monitor

3.Power and gas source connecting at backend of monitor

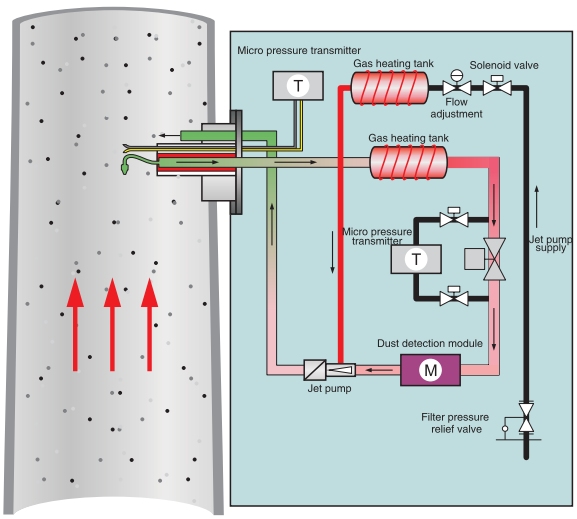
DMS series

For the accurate measurement of particle content system in different industries

Overview

DMS-300 extractive dust monitoring system is a high temperature heating extractive dust monitor, based on years of dust detection technology research and development process. Different from normal in situ scattering dust monitors, DMS-300 uniformly samples dust in the flue (stack) to the high temperature heat tracing dust measuring module to measure. Its detection limit reaches 0.05 mg/m^3. It has features of no moisture influence and high accuracy. It is applicable for ultra-clean emissions, low temperature and high humidity flue gas situation after wet deSOx, meet the coal-fired power plant air pollutants emission standards.

Measuring principle



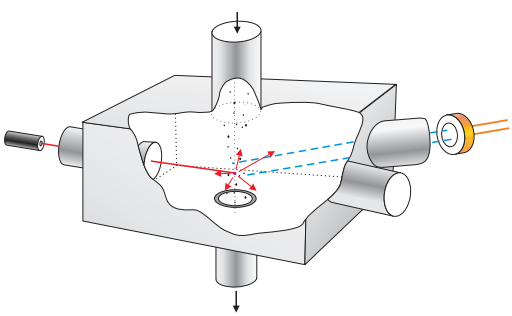
Under the negative pressure effect of jet pump, dust heated by sampling probe enters the measurement module. Heat tracing during the entire process of extraction, measurement and emission, it eliminates moisture interference, and prevents dust in the condensate blocking the gas path. After heating, the dust enters the measurement module, using laser forward scattering principle to measure dust concentration. The exhaust gas after measurement passes into the stack.

It uses electromagnetic valve and control unit to realize automatic counter blowing of gas path and measuring module, and automatic zero at regular intervals. After maintenance the laser device can be closed and calibration block can be inserted for manually zero and calibration.

It uses micro differential pressure transmitter and pitot tube to measure flue gas flow inside the stack, feedback to flow control device and controls pump velocity by changing the fluid flow, realizes pitot tube balance sampling, isokinetic extracts stack dust to measure.

Features

- Using laser forward scattering method to detect dust concentration, low detection limit
- High temperature heat tracing of dust extraction make steam evaporation to avoid dust agglomerate blocking gas path under the influence of water. Suitable for high humidity
- Pitot tube isokinetic sampling, comply with technical conditions of sampler for stack dust (HJ/T48-1999)
- Support automatic blow, cleaning gas path, stop the dust blocking
- Support automatic zero and manual span calibration in the field



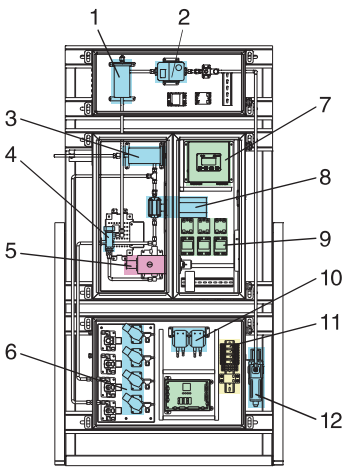
DMS series

Low and medium concentration dust measurement

Specifications

DMS–300 Dust monitor	
Measured data	
Measuring Principle	Laser forward scattering
Concentration Range	0~20mg/m^3, 0~50mg/m^3 (customizable)
Detection Limit	0.05mg/m^3
Accuracy	±20%
Repeatability	±10%
Response Time	2s (optional)
Laser	650nm, 20mW
measuring condition	
Sampling head diameter	6mm, 8mm, 10mm, 12mm (According to the condition of customization)
Heat Tracing Temperature	120℃ ~ 180℃
Medium Temperature	< 300℃
Ambient Temperature	– 20℃ ~ +50℃
Compressed Gir	No water and oil, ⩾0.4MPa, gas consumption 100L/min
Blowback Time	Blowback 30s (concentration data keep), interval period 3h (According to the condition of customization)
Velocity Range	(2 ~ 40)m/s
Preheating Time	15min
Input, output, and interface	
Analog Output	4–20mA, maximum load 500Ω
Communication Interface	RS485, RS232 (option)
General information	
Weight	103kg
Dimensions	1620mm (H) * 850mm (L) * 264mm (D)
Power	1500W
Supply	220VAC
Enclosure Rating	IP54

Composition



1	Jet gas heating tank
2	Flow controller
3	Sample gas heating tank
4	Jet pump
5	Measuring module
6	Solenoid valve
7	Control and display unit
8	High temperature ball value
9	Thermostat
10	Micro pressure transmitter
11	Terminal block
12	Filter pressure relief valve

The system comprises a Jet gas control unit (1, 2) , measuring unit (3, 4, 5, 8, 9) , Control and display unit (7) , and gas path control unit (6,10, 11, 12) . The flue gas in the stack is isokinetic extracted to measuring unit by gas path control unit. High temperature heat tracing of dust extraction to eliminate the influence of moisture on dust concentration measurement. The real dust concentration is displayed by control and display unit. Gas path control unit measures flow of the stack and gas path extractive. Adjusting the flow control valve to realize isokinetic extract and reflect the gas concentration more closely.

If you want to know more details, please visit: http://en.zetian-tech.com

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